ALTUSEN™
Enterprise Solutions by ATEN

Cat 5 High-Density Dual Rail LCD KVM Switch

KL1508A / KL1516A

User Manual

www.aten.com

FCC Information

This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

This product is RoHS compliant.

SJ/T 11364-2006

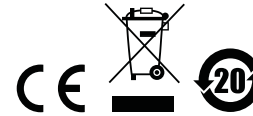
The following contains information that relates to China.

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
电器部件	●	○	○	○	○	○
机构部件	○	○	○	○	○	○

○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求之下。

●: 表示符合欧盟的豁免条款，但该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。

×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。



User Information

Online Registration

Be sure to register your product at our online support center:

International	http://support.aten.com
North America	http://www.aten-usa.com/product_registration

Telephone Support

For telephone support, call this number:

International	886-2-8692-6959
China	86-10-5255-0110
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-ATEN ext 4988
United Kingdom	44-8-4481-58923

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Package Contents

The KL1508A / KL1516A package consists of:

1 KL1508A or KL1516A Cat 5 High-Density Dual Rail LCD KVM Switch with Standard Rack Mount Kit

1 Firmware Upgrade Cable

1 Power Cord

1 User Instructions*

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the KL1508A / KL1516A installation.

***** Features may have been added to the KL1508A / KL1516A since this manual was printed. Please visit our web site to download the most up-to-date version of the manual.

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About This Manual

This User Manual is provided to help you get the most from your KL1508A / KL1516A system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Overview

Chapter 1, Introduction, introduces you to the KL1508A / KL1516A system. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Hardware Setup, describes how to set up your installation. The necessary steps – from a basic single stage hookup to a complete daisy chained operation are provided.

Chapter 3, Basic Operation, explains the fundamental concepts involved in operating the KL1508A / KL1516A.

Chapter 4, OSD Operation, provides a complete description of the KL1508A / KL1516A's OSD (On Screen Display), and how to work with it.

Chapter 5, Hotkey Operation, details all of the concepts and procedures involved in the keyboard hotkey operation of your KL1508A / KL1516A installation.

Chapter 6, Keyboard Emulation, provides tables that list the PC to Mac and PC to Sun keyboard emulation mappings.

Chapter 7, The Firmware Upgrade Utility, explains how to upgrade the KL1508A / KL1516A's firmware with the latest available versions.

An Appendix, provides specifications and other technical information regarding the KL1508A / KL1516A.

Conventions

This manual uses the following conventions:

`Monospaced`	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, **[Enter]** means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
→	Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
	Indicates critical information.

Product Information

For information about all ALTUSEN products and how they can help you connect without limits, visit ALTUSEN on the Web or contact an ALTUSEN Authorized Reseller. Visit ALTUSEN on the Web for a list of locations and telephone numbers:

International	http://www.aten.com
North America	http://www.aten-usa.com

Chapter 1
Introduction

Overview

A KL1508A or KL1516A KVM switch is a control unit that allows IT administrators to access and control multiple computers from a single PS/2 or USB KVM (keyboard, monitor, and mouse) console. A single KL1508A / KL1516A can control up to 8 / 16 computers. They consist of an integrated LCD monitor, keyboard, and touchpad in a 1U rack-mountable retractable sliding housing.

The similarities and differences among the models in the KL1508A / KL1516A series are shown in the following table:

Model	LCD Panel	Ports
KL1508AM	17"	8
KL1508AN	19"	8
KL1516AM	17"	16
KL1516AN	19"	16

The LCD and keyboard/touchpad modules slide independently of each other. To maximize space in your data center, the keyboard/touchpad module slides back to "hide away" when not in use, while the thin profile LCD monitor rotates back – flush against the rack – allowing administrators to monitor computer activity on the installation.

By daisy chaining up to 31 additional switches, as many as 512 computers can be controlled from the original KVM console. An auto-sensing function recognizes the position of each station on the chain, eliminating the need to manually set the position, and a seven-segment front panel LED displays each Station's position for easy identification.

Compact, high-density, RJ-45 connectors and CAT 5e/6 cable make for a compact, efficient, wiring configuration, while the use of PS/2 and USB *KVM Adapter Cables* to link to the computers, permits any combination of PCs, Macs, Sun computers, and serial devices to coexist on the installation.

Setting up the KL1508A / KL1516A is fast and easy – plugging cables into their appropriate ports is all that is entailed. Because the KL1508A / KL1516A intercepts keyboard and mouse input directly, there is no software to configure and no complex installation routines.

Access to any computer on the installation is easily accomplished – either by pressing front panel port selection pushbuttons; entering hotkey combinations from the keyboard; or by means of a powerful OSD (On Screen Display) menu system. A convenient Auto Scan function also permits automatic scanning and one-by-one monitoring of the activities of selected computers.

Your KL1508A / KL1516A investment is protected through firmware upgrades. You can download firmware update files from our website, and use the *Firmware Upgrade* function to quickly and conveniently install them.

There is no better way to save time and money than with a KL1508A / KL1516A installation. By using the KL1508A / KL1516A with its sliding LCD console to manage your installation, you: (1) eliminate the expense of purchasing separate keyboards, monitors, and mice; (2) save all the space those extra components would take up; (3) save space that a keyboard, monitor, and mouse would take with a standard KVM switch; (4) save on energy costs; and (5) eliminate the inconvenience and wasted effort involved in constantly having to move from one computer to another.

Features and Benefits

The features and benefits provided by a KL1508A / KL1516A deployment are described in the following table:

Features	Benefits
Simple Installation and Operation	Plug-and-play installation – no software required – connecting cables is all it takes. Station positions are automatically recognized. Computer selection via front panel switches; hotkeys; or multi-language OSD (On Screen Display) menus.
Keyboard/Touchpad module	KVM console with 17"or 19" LCD monitor in a sliding housing with top and bottom clearance for smooth operation in a 1U high rack. Dual Rail operation – LCD monitor slides independently of the keyboard/touchpad. Console lock enables the sliding console to remain securely locked away when not in use.
Single Console Control	Access and control up to 8 (KL1508A) or 16 (KL1516A) computers from a single PS/2 or USB KVM (keyboard, video, and mouse) console.
Scalability	By daisy chaining up to 31 additional KL1508A / KL1516A switches, as many as 512 computers can be controlled from the original KVM console – eliminating the expense of purchasing separate peripherals for each server.
Easy Installation	Setting up the KL1508A / KL1516A is fast and easy – plugging cables into their appropriate ports is all that is entailed. Because there is no software to configure, incompatibility and configuration issues are non-existent.
Easy Operation	Three port selection methods: Manual (via front panel pushbuttons), Hotkey, and multi-language OSD (On Screen Display). Multi-language keyboard support includes English (US / UK), French, German, Japanese, Korean, and Traditional Chinese.
Hardware Independent Cross-Platform Support	The KL1508A / KL1516A supports Windows 2000/XP/Vista/7, Linux, Unix, Novell, FreeBSD, Sun, and Mac.
Space-Saving RJ-45 Connectors and Cat 5e/6 Cabling	This space-saving innovation means that the KL1508A / KL1516A can be conveniently installed in a 1U system rack, and the installation can take advantage of the internal network wiring built into most modern commercial buildings. Reduces cable clutter for a neat and tidy data center environment

(Continues on next page.)

(Continued from previous page.)

Features	Benefits
KVM Adapter Cables to Connect to Servers and Devices	For convenience and flexibility that allows mixing the PS/2, USB and serial interfaces, the KL1508A / KL1516A's design utilizes KVM adapter cables that serve as intermediaries between the KVM switch and the connected devices. KVM adapter cables are available in PS/2, USB, and Serial interfaces to support a wide variety of data center servers and devices.
Two-Level Password Security	Supports one administrator and ten user profiles. Strong password protection prevents unauthorized accessing to the installation – keeping your valuable data secure.
Upgradeable Firmware	Stay current with the latest functionality improvements and updates by downloading firmware upgrade files from our website and installing them with the built-in firmware upgrade utility.
Effortless Upgrades	Simultaneous firmware upgrades to all daisy-chained KVM switches and dongles through the daisy-chain cable.
Auto Scanning and Broadcast Mode	Auto scanning provides hands-free monitoring of selected devices at variable rates. Broadcast Mode sends commands from the console to all computers – allowing you to perform operations (such as software installation, upgrades, shutdowns, etc.), on them simultaneously
Superior Video Quality	Supports the video resolutions up to 1600x1200@60hz for up to 40 meters, and 1280x1024@75hz for up to 50 meters with the new ATEN KVM Cable Adapter KA7000 series.
Multiple User Accounts	Supports up to 10 user and 1 administrator accounts
Hot Pluggable	Ability to add or remove components without having to power off the KVM switch.
Adapter Cables with ID	The KL1508A / KL1516A KVM series supports automatic ID recognition of the new ATEN KVM Cable Adapter KA7000 series (*KVM Adapter Cables*). Using the new adapter cables with ID means it is not required to change cable configuration settings when moving cables from port to port. Device ID and attributes are stored in the adapter cables allowing you to hot-swap port connections without having to reconfigure attributes.

Requirements

External Console

- A VGA, SVGA, or multisync monitor capable of the highest resolution that you will be using on any computer in the installation
- A PS/2 or USB mouse
- A PS/2 or USB keyboard

Computers

The following equipment must be installed on the computers that connect to the KL1508A or KL1516A KVM ports:

- A VGA, SVGA or multisync port

Note: The integrated LCD monitor's maximum resolution is 1280 x 1024 @ 75Hz. If you want to use a higher setting for the screen resolutions of the attached computers, see *Screen Resolutions Higher than 1280 x 1024*, page 81.

- A Type A USB port and USB host controller (for USB KVM adapter cable connection, see following section)

  - or -

- 6-pin Mini-DIN keyboard and mouse ports (for PS/2 KVM adapter cable connection, see following section)

KVM Adapter Cables

- Cat 5e/6 cable is required to connect the KL1508A / KL1516A to one of the KVM adapter cables.
- The following KVM adapter cables are required for use with the KL1508A / KL1516A:

Function	Module
Connect to devices with PS/2 ports	KA7920 / KA7520 / KA7120 KA9520 / KA9120
Connect to devices with USB ports	KA7970 / KA7570 / KA7170 KA9570 / KA9170
Connect to Sun Legacy systems (with 13W3 port)	KA9130 / KA7130
Connect to Sun USB systems	KA9170 / KA7170
Connect to serial based devices	KA9140

Note: 1. KVM adapter cables are referred to as *I/O Modules* in some dialog boxes.

2. The following cable models support the Adapter Cable ID function: KA7920 / KA7970 / KA7520 / KA7570 / KA7120 / KA7130 / KA7170.

Operating Systems

Supported operating systems are shown in the table, below:

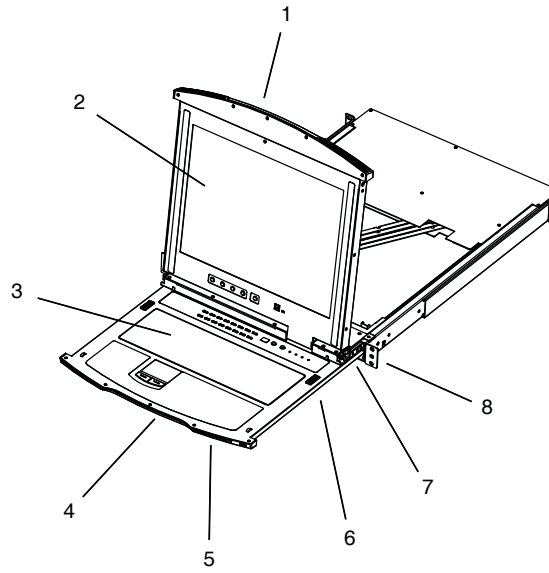
OS		Version
Windows		NT[1], 2000, XP, 2003 Server, 2008 Server, Vista
Linux[2]	RedHat	9.0, Fedora and higher, RHEL AS 4, RHEL 5
	SuSE	10 and higher, OpenSUSE 10.2; SLES 10 SP1
	Debian	3.1, 4.0
	Ubuntu	7.04, 7.10
UNIX	IBM	AIX4.3, 5L (V5.2,V5.3), V6 (V6.1)
	FreeBSD	5.5, 6.1, 6.2
Novell	Netware	5.0 and higher
Sun		Solaris 8, 9, 10
Mac		9.0, 9.1, 10.1, 10.2, 10.3, 10.4 , 10.5
DOS		6.2 and higher[1]

[1] Does not support USB.

[2] Kernels below 2.6 do not support USB 2.0

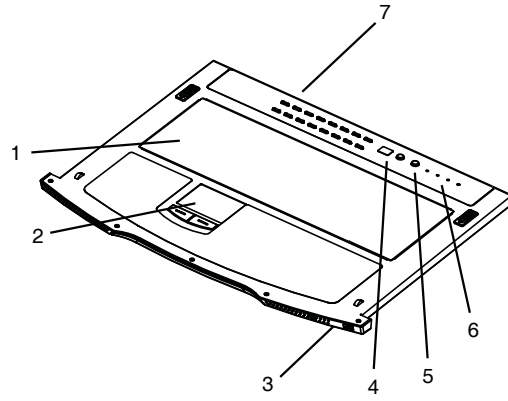
Components

Front View



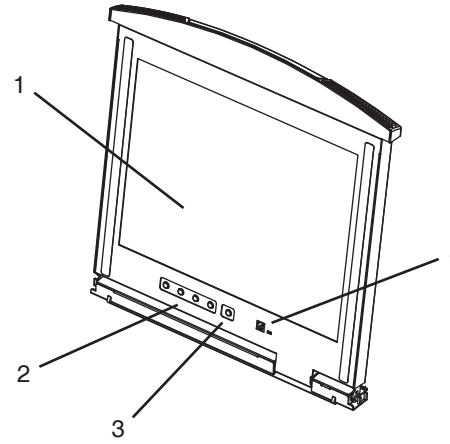
No.	Component	Description
1	Upper Handle	Pull to slide the LCD module out; push to slide the module in. See *Opening the Console*, page 19, for details on sliding the console in and out.
2	LCD Module	See *LCD Module*, page 9.
3	Keyboard Module	See *Keyboard Module*, page 8.
4	Lower Handle	Pull to slide the keyboard module out. See *Opening the Console*, page 19, for more details on sliding the console in and out.
5	Power LED	Lights (blue) to indicate that the unit is receiving power.
6	Keyboard Release Catch	These catches (one on each side) release the keyboard module so you can slide it away.
7	LCD Release Catch	These catches (one on each side) release the LCD module so you can slide it away.
8	Rack Mounting Tabs	The rack mounting tabs located at each corner of the unit secure the chassis to a system rack. See *Standard Rack Mounting*, page 12, for details.

Keyboard Module



No.	Component	Description
1	Keyboard	Standard 105-key keyboard
2	Touchpad	Standard mouse touchpad
3	External Mouse Port	This USB-type mouse port is provided for users who prefer to use an external mouse.
4	Station ID LED	In a daisy chained installation, the Station ID of the currently selected station displays as a 2-digit figure in this panel. See *Port ID Numbering*, page 29 for further details.
5	Station Selection Area	◆ The LED displays the station number that the port with the KVM focus is located on. ◆ The left button shifts the KVM focus down the chain (Station 2 → Station 1, etc.). After Station 1, it cycles back to the last Station. ◆ The right button shifts the KVM focus up the chain. After the last Station, it cycles to Station 1.
6	Lock LEDs & Reset Switch	The Num Lock, Caps Lock, Scroll Lock LEDs are located here. A Reset Switch is located just to the right of the Lock LEDs. Press this recessed switch in with a thin object to perform a system reset.
7	Port Selection Buttons and LEDs	To access a Port on the currently selected Station press its corresponding port selection button. Indicator LEDs are built into the switches: ◆ An **On Line** LED lights to indicate that the computer attached to its corresponding port is up and running. ◆ A **Selected** LED lights to indicate which port has the KVM focus.

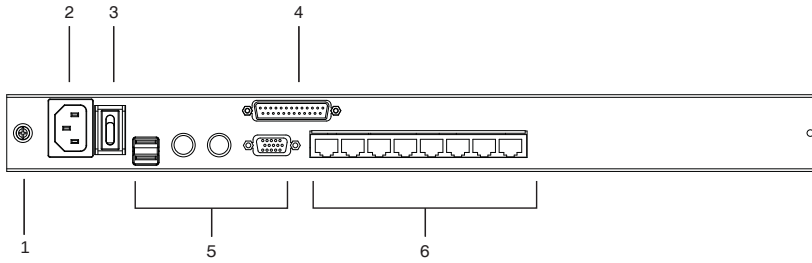
LCD Module



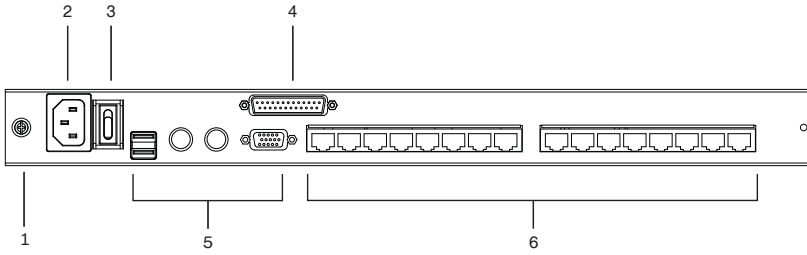
No.	Component	Description
1	LCD Display	To access the LCD monitor, slide the LCD module out and flip up the cover. See *Opening the Console*, page 19, for details on sliding the LCD module out.
2	LCD Controls	These buttons control the position and picture settings of the LCD display. See *LCD OSD Configuration*, page 25, for details.
3	LCD On/Off Button	Push this button to turn the LCD monitor on and off. The button lights when the LCD monitor is off to indicate that only the monitor is off – not the KVM switch itself.)
4	Firmware Upgrade Section	**Firmware Upgrade Port:** The Firmware Upgrade Cable that transfers the firmware upgrade data from the administrator's computer to the KL1508A / KL1516A plugs into this RJ-11 connector. **Firmware Upgrade Switch:** During normal operation this switch should be in the NORMAL position. (See *The Firmware Upgrade Utility*, page 57 for firmware upgrading details.)

Rear View

KL1508A



KL1516A

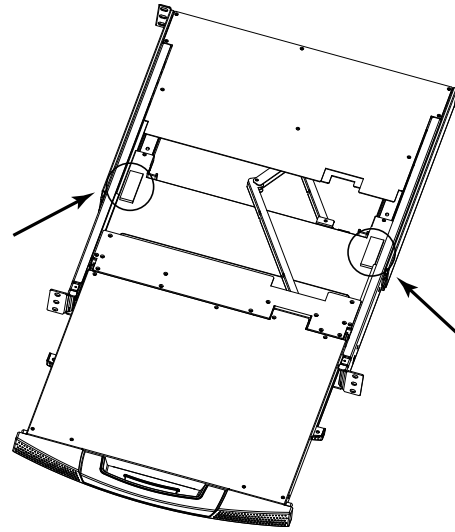


No.	Component	Description
1	Grounding Terminal	The grounding used to ground the switch attaches here.
2	Power Socket	This is a standard 3-prong AC power socket. The power cord from an AC source plugs in here.
3	Power Switch	This standard rocker switch powers the unit on and off.
4	Daisy Chain Port	When Daisy Chaining Units (see *Daisy Chaining*, page 17), the daisy chain cable plugs in here.
5	Console Port Section	If this is a Single Station installation, or if this is the First Station of a daisy chained installation, the keyboard, monitor, and mouse that make up the Local Console plug in here.
6	KVM Port Section	The Cat 5/6e cables that link to the KVM Adapter Cables (which link to the computers) plug in here.

Chapter 2
Hardware Setup

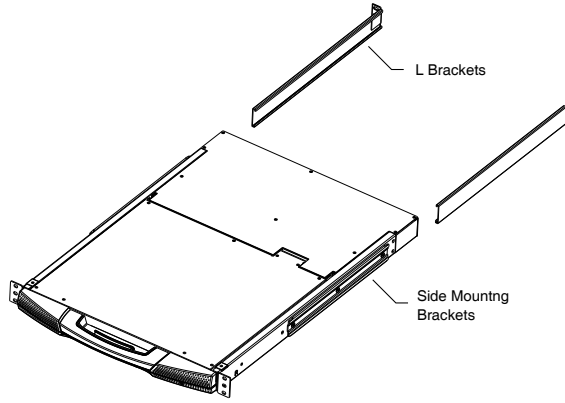
Before you Begin

1. Important safety information regarding the placement of this device is provided on page 65. Please review it before proceeding.
2. Make sure that power to all the devices you will be connecting up has been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.
3. Packing material has been inserted to protect the KL1508A / KL1516A during shipping. Slide the LCD module out (see *Opening the Console*, page 19), until the packing material is visible. Remove the packing material before installing the unit, as shown in the diagram below.



Standard Rack Mounting

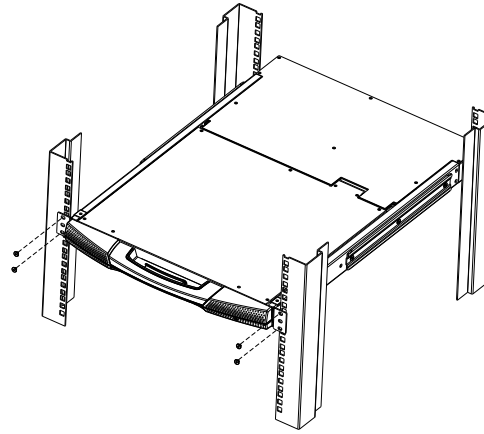
A standard rack mounting kit is provided with your KL1508A / KL1516A. The kit enables the switch to be mounted in rack with a depth of 42–77 cm.



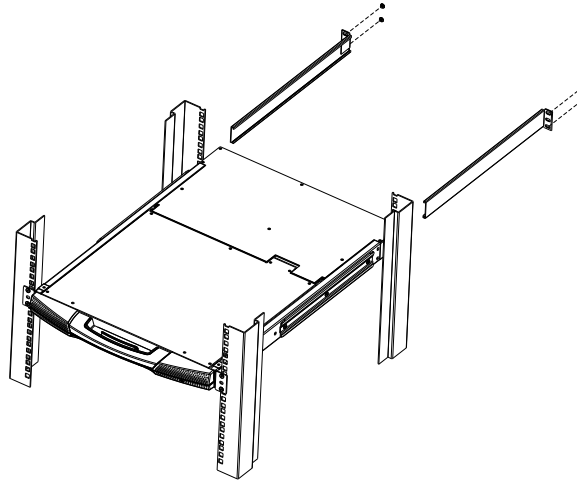
Note: It takes two people to mount the switch: one to hold it in place, the other to screw it in. Optional kits—including single person *Easy Installation* kits—are available with a separate purchase. See *Rack Mounting*, page 67, for details.

To rack mount the switch, do the following:

1. While one person positions the switch in the rack and holds it in place, the second person—using the screws provided with the rack mounting kit—loosely screws the front brackets to the rack.



2. While the first person still holds the switch in place, the second person slides the L brackets into the switch's side mounting brackets, from the rear until the bracket flanges contact the rack, then—using the screws provided with the rack mounting kit—screws the L brackets to the rack.



3. After the L brackets have been secured, tighten the front bracket screws.

Note: 1. Cage nuts are provided for racks that are not prethreaded.

2. Allow at least 5.1 cm on each side for proper ventilation, and at least 12.7 cm at the back for the power cord and cable clearance.

Single Station Installation

In a single stage installation, there are no additional KVM switches daisy chained down from the KL1508A / KL1516A. To set up a single stage installation, refer to the installation diagrams starting on page 15 (the numbers in the diagram correspond with the numbers of the instruction steps), and do the following:

1. Ground the KL1508A / KL1516A by connecting one end of a grounding wire to the grounding terminal, and the other end of the wire to a suitable grounded object.

   Note: Do not omit this step. Proper grounding helps to prevent damage to the unit from surges or static electricity.

2. Plug the console keyboard, monitor, and mouse into the unit's console ports. The ports are color coded and marked with icons for easy identification.

   Note: You can use any combination of keyboard and mouse connections. For example, you can use a PS/2 keyboard with a USB mouse.

3. Use Cat 5e/6 cable to connect any available KVM port to a KVM adapter cable that is appropriate for the computer you are installing (see *KVM Adapter Cables*, page 5 for details).

   Note: To support a resolution of 1280x1024, the recommended maximum distance between the unit and the KVM adapter cable is 50 meters.

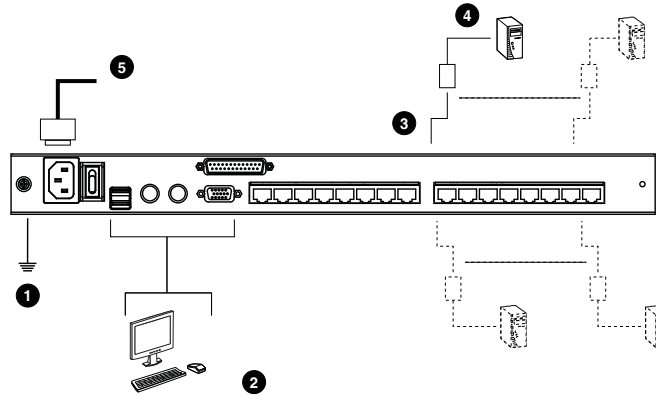
4. Connect the KVM adapter cable to the computer.

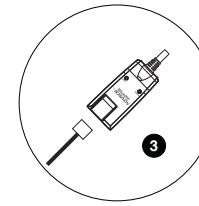
   Plug the connectors on the KVM adapter cable into the appropriate ports of the computer you are installing. (See *KVM Adapter Cable Installation Diagrams*, page 16 for connection examples.)

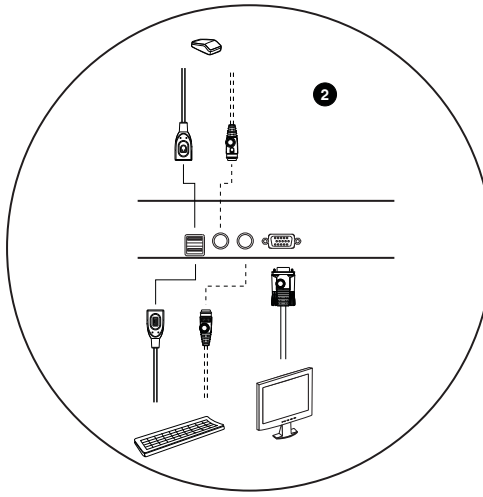
5. Plug the female end of the power cord into the KL1508A / KL1516A's power socket; plug the male end into an AC power source.

After the KL1508A / KL1516A is cabled up, you can turn on the power. After it is powered up, you can turn on the servers.

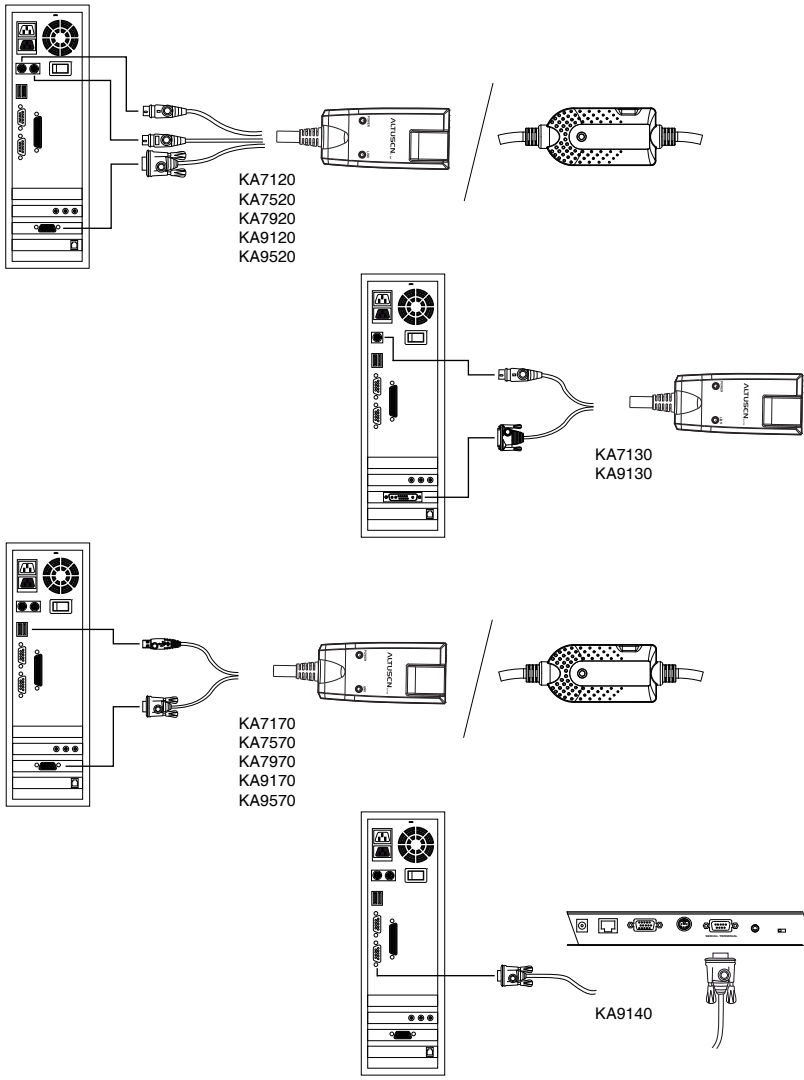
Single Stage Installation Diagram







KVM Adapter Cable Installation Diagrams



Daisy Chaining

To control even more computers, up to 31 additional KL1508A / KL1516A KVM switches can be daisy chained from the original KL1508A or KL1516A. As many as 512 computers can be controlled from a single console in a complete installation.

Note: Since it would be unnecessarily wasteful and expensive to use KL1508A / KL1516A switches for daisy chaining (there is no point in having consoles on the chained switches), switches without LCD consoles are used instead. Please see the table, *Compatible Switches*, page 72 for a list of ATEN switches that can be installed on a KL1508A / KL1516A daisy chain.

Tables showing the relation between the number of computers and the number of KL1508A / KL1516A units needed to control them are provided on page 69.

To set up a daisy chained installation, make sure that power to all the devices you will be connecting up has been turned off, and refer to the *Daisy Chaining*, page 17 as you do the following:

1. Use a daisy chain cable set to connect the *Chain Out* port of the parent KL1508A / KL1516A unit to the *Chain In* port of the child KL1508A / KL1516A unit (first station out to second station in, second station out to third station in, etc.).

   Note: 1. You cannot use the chain in port of the First Station, since it is the highest level parent.

   2. Daisy chain cable sets require a separate purchase. See your dealer for details.

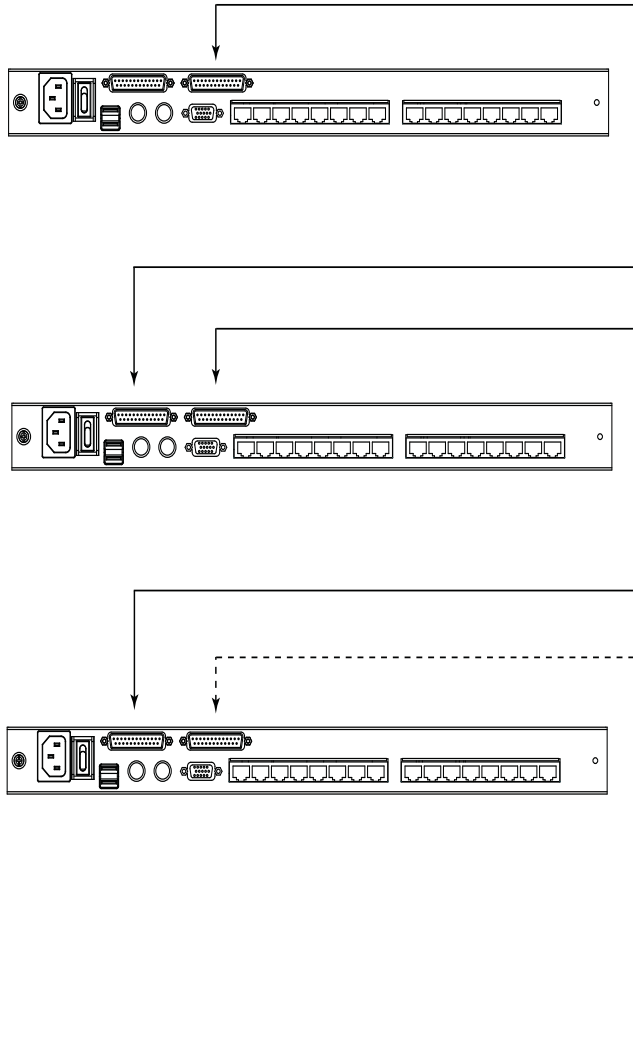
2. Cable up the computers and the switch according to the information provided under *Single Station Installation*, page 14.
3. Repeat the above for any other switches you want to add to the chain.
4. Power up the installation according to the following procedure:

   a) Plug in the power cord for the first station. Wait for the unit to ascertain its station ID and display it on the Station ID LED. (The station ID for the first stage unit is 01, the ID for the second stage unit is 02, the ID for the third stage unit is 03, etc.)

b) Power on each station on the installation in turn (second station, then third station, etc.). In each case, wait for the station ID to be ascertained and displayed before powering on the next station.

c) After all the stations are up, power on the computers.

Daisy Chain Installation Diagram



Chapter 3
Basic Operation

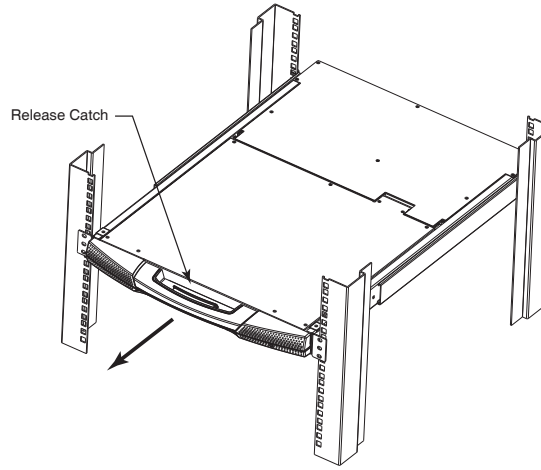
Opening the Console

The KL1508A / KL1516A's console consists of two modules: An LCD display module located under the top cover; and a keyboard / touchpad module below the LCD module.

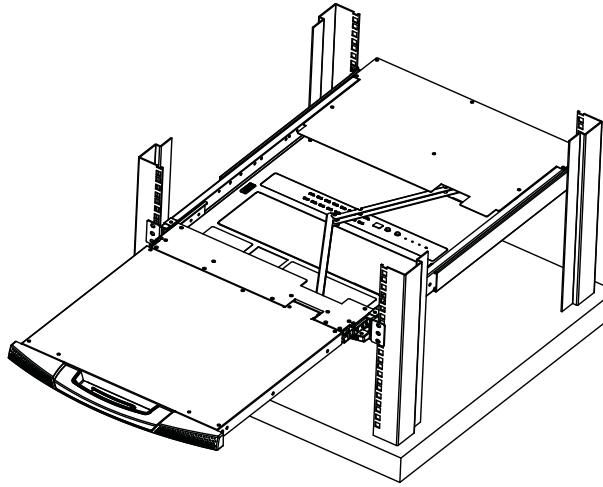
The modules can either slide together, or independently. This allows you to have the LCD display available for viewing while the keyboard / touchpad module is conveniently out of the way when not in use.

Opening Separately

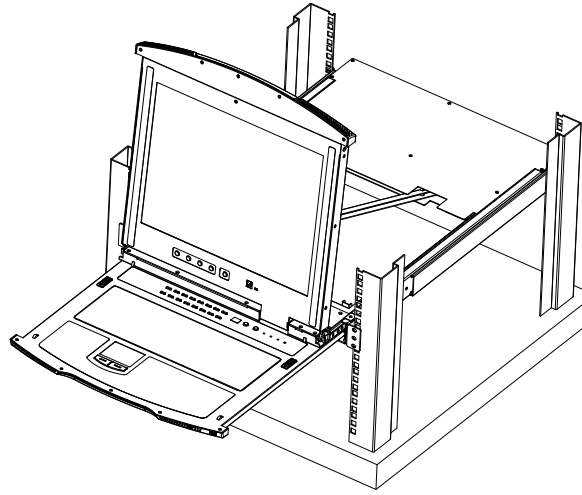
1. Pull the release catch to release the console, and pull the top panel a few centimeters toward you. Once the console has been released, you can let go of the catch.



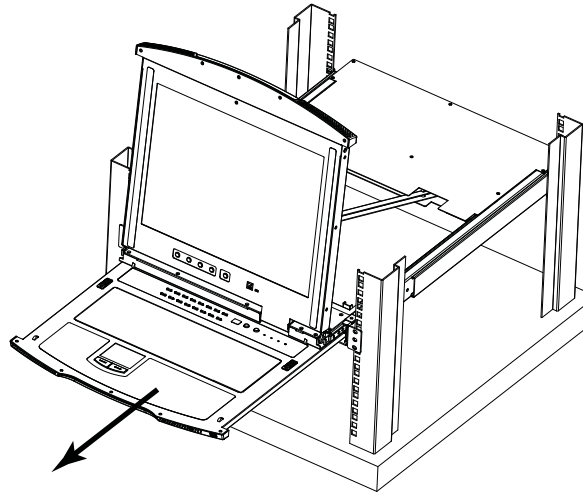
2. Pull the top panel all the way out until it clicks into place.



3. Rotate the top panel all the way back to expose the LCD screen.



4. Reach underneath and pull the keyboard module all the way out until it clicks into place.



Opening Together

Refer to the diagrams in the *Opening Separately* section as you do the following:

1. Pull the release catch and pull the top and bottom panels out until the keyboard module clicks into place.

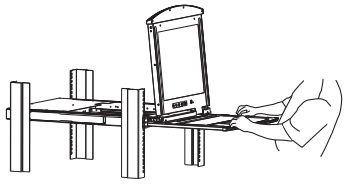
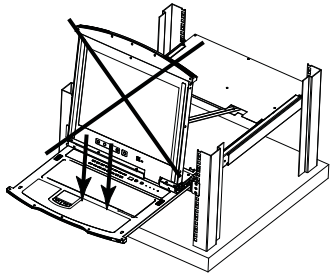
   Note: Once the console has been released, you can let go of the catch.

2. Pull the top panel the rest of the way out until it clicks into place.
3. Rotate the top panel all the way back to expose the LCD screen.

Note: Refer to the warning regarding placing excessive weight on the keyboard module on the following page.

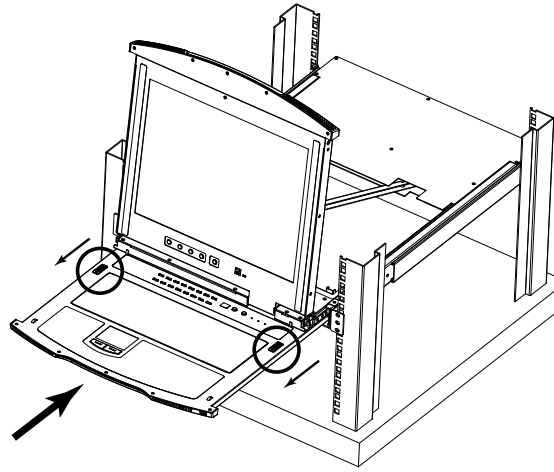
Operating Precautions

The maximum load bearing capacity of the keyboard module is 30kg. Failure to heed the information below can result in damage to the keyboard module.

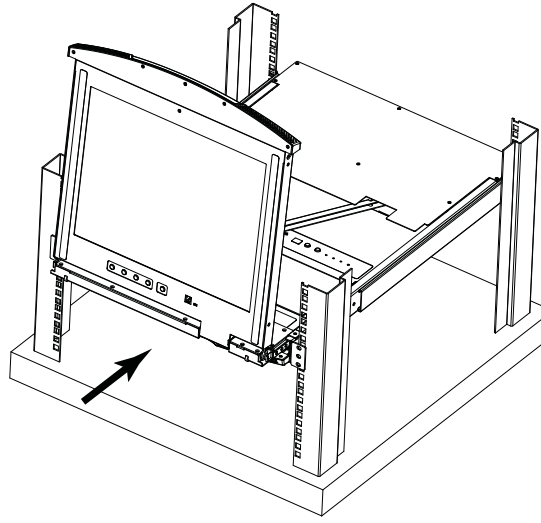
	RIGHT Rest your hands and arms lightly on the keyboard module as you work.
	WRONG! ◆ **DO NOT** lean your body weight on the keyboard module. ◆ **DO NOT** place heavy objects on the keyboard module.

Closing the Console

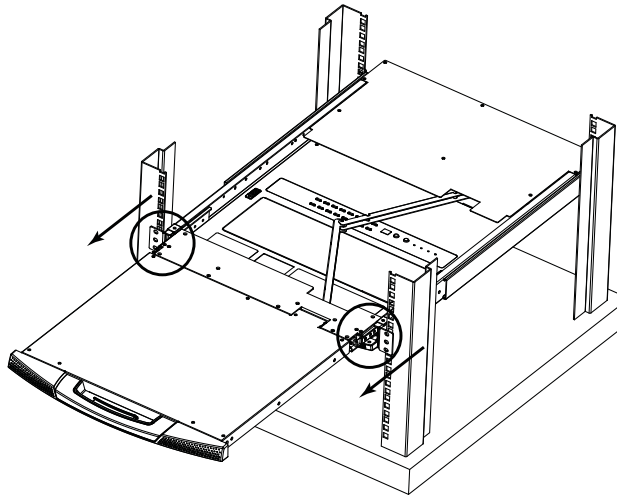
1. Pull the release catches located on either side of the keyboard toward you to release the keyboard module, then slide the module slightly in.



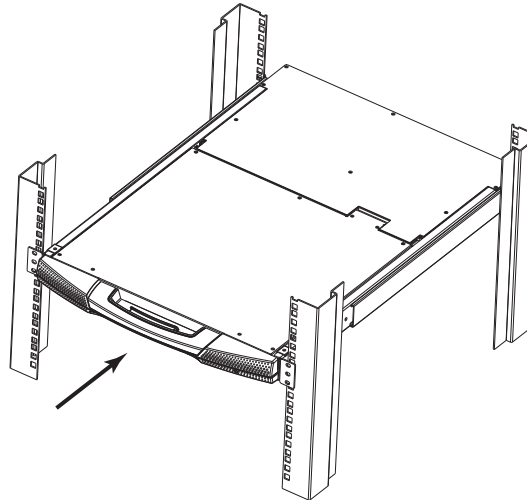
2. Let go of the catches. Using the front handle, push the keyboard module all the way in.



3. Rotate the LCD module all the way down, then pull the rear catches to release the LCD module.



4. Using the front handle, push the module all the way in.



LCD OSD Configuration

The LCD Buttons

The LCD OSD allows you to set up and configure the LCD display. Four buttons (see *LCD Controls*, page 9) are used to perform the configuration, as described in the table below:

Button	Function
MENU	When you have not entered the LCD OSD Menu function, pressing this button invokes the Menu function and brings up the Main Menu.
▶|▲	When navigating through the menus, this button moves you right or up. When making an adjustment, it increases the value.
◀|▼	When navigating through the menus, this button moves you left or down. When making an adjustment, it decreases the value.
EXIT	◆ When you have not entered the LCD OSD Menu function, pressing this button performs an auto adjustment. An auto adjustment automatically configures all the settings for the LCD panel to what the OSD considers their optimum values to be. ◆ When you have entered the LCD OSD Menu function, pressing this button exits the current menu and returns you to the previous menu. Use it to leave an adjustment menu when you are satisfied with the adjustment you have made. ◆ When you are at the Main Menu, pressing this button exits the LCD OSD.

The Adjustment Settings

An explanation of the LCD OSD adjustment settings is given in the table below:

Setting	Explanation
Brightness	Adjusts the background black level of the screen image.
Contrast	Adjusts the foreground white level of the screen image.
Phase	If pixel jitter or horizontal line noise is visible on the display, your LCD may have the wrong phase setting. Adjust the phase setting to eliminate these problems.
Clock	If vertical banding is visible on the display, your LCD may have the wrong clock setting. Adjust the clock setting to eliminate vertical banding.
H-Position	Positions the display area on the LCD panel horizontally (moves the display area left or right).
V-Position	Positions the display area on the LCD panel vertically (moves the display area up or down).
Color Temperature	Adjusts the color quality of the display. You can adjust the "warmth" value, color balance, etc. The *Adjust Color* selection has a further submenu that lets you fine tune the RGB values.
Language	Selects the language that the OSD displays its menus in.
OSD Duration	Lets you set the amount of time that the OSD displays on the screen. If there is no input for the amount of time you choose, the OSD display turns off.
Reset	Resets the menu and submenu adjustments (except for language settings) to the original factory default settings.

Port Selection

KL1508A / KL1516A installations provide three methods to obtain instant access to any computer on your installation: Manual, OSD (on-screen display), and Hotkey.

Manual

Manual port selection simply involves pressing the port selection switch that corresponds to the device you wish to access.

OSD

The OSD provides a menu driven interface to the computer switching procedure. OSD operation is discussed in the next chapter.

Hotkey

Hotkeys allow you to conveniently provide KVM focus to a particular computer from the keyboard instead of having to manually select them by pressing port selection switches, or accessing the OSD. Keyboard operation is discussed in Chapter 5.

Hot Plugging

The KL1508A / KL1516A supports hot plugging – components can be removed and added back into the installation by unplugging and re-plugging their cables without the need to shut the unit down. In order for hot plugging to work properly, however, the procedures described below should be followed.

Hot Plugging Stations

You can switch station positions by simply unplugging from the old parent and plugging into a new one. After you do, in order for the OSD menus to correspond to the change, you should reset the OSD. See *RESET STATION IDS*, page 40, for details.

Hot Plugging KVM Ports

After switching KVM ports, in order for the OSD menus to correspond to the change, you may need to reconfigure the OSD information for the new port information. The settings of the port name, operating system, and keyboard language will be restored to the KVM switch from any previously used adapter cables after they are plugged in. See *F3: SET*, page 36, and the port setting selections under the *F4 ADM* function, page 39, for details.

Note: 1. If a computer's operating system doesn't support hot plugging, this function may not work properly.

2. Empty ports that previously were connected to an adapter cable will retain their prior configuration data.

Hot Plugging Console Ports

The keyboard, monitor, and mouse can be hot plugged. When hot plugging the mouse, however, be aware of the following:

- If you unplug the mouse (to reset the mouse, for example), you must use the *same* mouse when you plug back in.
- If you plug in a different mouse, all the stations and all the computers on the installation must be shut down for 10 seconds, then restarted following the sequence given under *Powering Off and Restarting* on page 29.
- Some older operating systems may not support hot-plugging.

Note: If, after hot plugging (or at any other time), there is no response to keyboard and/or mouse input, perform a keyboard and mouse reset by pressing in the Reset switch (see page 8).

Powering Off and Restarting

If it becomes necessary to power off the KL1508A / KL1516A, or if the switch loses power and needs to be restarted, before starting it back up you should follow these procedures to prevent possible equipment issues:

1. Shut down all the computers that are attached to it.

   Note: You must unplug the power cords of any computers that have the Keyboard Power On function.

2. Wait 10 seconds then power it back on. If you have shut down more than one station, power up the highest station first and work your way down to the lowest one. Wait for each station to display its station ID on the front panel LED before powering on the next one.
3. After the station(s) is (are) up, power the computers back on.

Port ID Numbering

Each computer on the installation is assigned a unique port ID. The port ID is a one or two segment number that is determined by the stage level and port number of the switch that the computer is connected to.

The first segment represents the stage level of the switch (04, for example); the second segment represents the number of the port that the computer is plugged into.

For example, if a computer is connected to KVM port 3 of a switch that is in the 12th position of the daisy chain, it would have a port ID of 12-03.

Note: Single digit numbers (1–9) are padded with a preceding zero (0).

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Chapter 4
OSD Operation

OSD Overview

The On Screen Display (OSD) is a menu driven method to handle computer control and switching operations. All procedures start from the OSD Main Screen. To display the Main Screen, tap the OSD hotkey twice.

The default hotkey is [Scroll Lock]. You can change the hotkey to the Ctrl key or the Alt key if you like (see *OSD HOTKEY*, page 36).

Note: 1. If you use the Ctrl or Alt key method you must press the same Ctrl or Alt key both times.

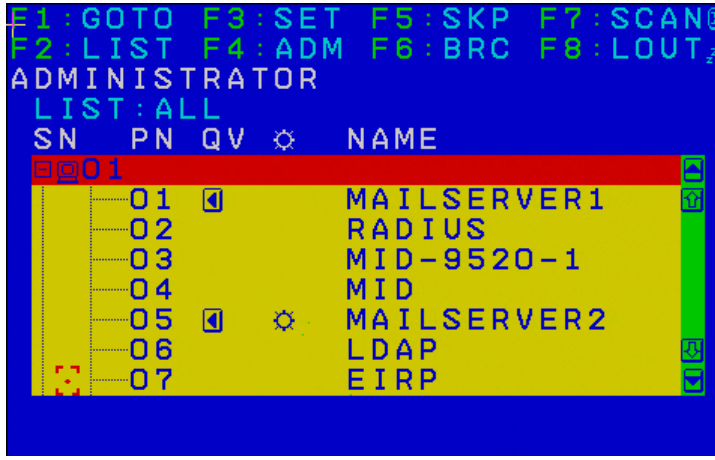
2. Once you start the OSD, the keyboard lock will be controlled by the device. The number lock and caps lock will always be on when the OSD is being accessed.

The OSD incorporates a two level (administrator / user) password system. Before the OSD Main Screen comes up, a login dialog box appears that asks for a username and password. You must provide a valid username and password in order to continue.

If this is the first time that the OSD is being run, or if the password function has not been set, simply press **[Enter]**. The OSD main screen displays in administrator mode. In this mode, you have administrator privileges, with access to all administrator and user functions, and can set up operations (including password authorization) as you like.

After logging in with the default username and password, the OSD Main Screen opens in Administrator mode. In this mode, you have administrator privileges, with access to all administrator and user functions, and can set up operations (including password authorization for the future), as you would like.

When you invoke the OSD, a screen similar to the one below appears:



Note: 1. The diagram depicts the Administrator's Main Screen. The User Main Screen does not show the **F4** and **F6** functions, since these are reserved for the administrator and can't be accessed by ordinary users.

2. Only the ports that have been set accessible by the Administrator for the currently logged in user are visible (see *SET ACCESSIBLE PORTS*, page 39, for details).

OSD Navigation

- To dismiss the menu, and deactivate the OSD, click the **X** at the upper right corner of the OSD Window or press **Esc**.
- To Logout click **F8** or the $_{Z}Z^{Z}$ symbol at the top of the Main Screen, or press **[F8]**.
- The OSD uses a tree view. To see the ports for a particular station, click the plus sign [**+**] in front of the station number. The port number list drops down. To dismiss the list, click the circle symbol [**o**] in front of the station number.
- To move up or down through the list one line at a time, click the up and down triangle symbols (▲▼) or use the up and down arrow keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.
- To move up or down through the list one screen at a time, click the up and down arrow symbols (🡅🡇), or use the [Pg Up] and [Pg Dn] keys. If there are more list entries than there is room for on the Main Screen, the screen will scroll.
- To bring the KVM focus to a port, double-click it, or move the highlight bar to it and then press **[Enter]**.
- After executing any action, you automatically go back to the menu one level above.

OSD Main Screen Headings

Heading	Explanation
SN-PN	This column lists the port ID numbers (station number-port number) for all the KVM ports on the installation. The simplest method to access a particular computer is to click it, or move the highlight bar to it, and then press **[Enter]**.
QV	If a port has been selected for Quick View scanning (see *SET QUICK VIEW PORTS*, page 38), an arrowhead displays in this column.
☼	The computers that are powered on and are online have a sun symbol in this column.
NAME	If a port has been given a name (see *EDIT PORT NAMES*, page 40), its name appears in this column.

OSD Functions

OSD functions are used to configure and control the OSD. For example, you can rapidly switch to any port, scan selected ports only, limit the list you wish to view, designate a port as a Quick View Port, create or edit a port name, or make OSD setting adjustments.

To access an OSD function:

1. Either click a function key field at the top of the Main Screen, or press a function key on the keyboard.
2. In the submenus that appear make your choice either by double clicking it, or moving the highlight bar to it, and then pressing **[Enter]**.
3. Press **[Esc]** to return to the previous menu level.

F1: GOTO

Accessing the GOTO function allows you to switch directly to a port either by keying in the port's name or its port ID.

- To use the Name method, key in **1**, key in the port's name, and then press **[Enter]**.
- To use the Port ID method, key in **2**, key in the port ID, and then press **[Enter]**.

Note: You can key in a partial name or port ID. The screen will show all the computers that the user has *View* rights to (see *SET ACCESSIBLE PORTS*, page 39), that match the name or port ID pattern, regardless of the current *List* settings (see *F2: LIST*, page 35, for details).

To return to the OSD Main Menu without making a choice, press **[Esc]**.

F2: LIST

Many of the switch's OSD functions only operate on the computers currently selected for listing on the Main Screen. Accessing this function lets you broaden or narrow the scope of ports that get listed. The submenu choices and their meanings are given in the table below:

Choice	Meaning
ALL	Lists all of the ports on the installation.
QUICK VIEW	Lists only the ports that have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, page 38).
POWERED ON	Lists only the ports that have attached computers Powered On.
QUICK VIEW + POWERED ON	Lists only the ports that have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, page 38), and that have their attached computers Powered On.

Move the highlight bar to the choice you want, then press **[Enter]**. An icon appears before the choice to indicate that it is the currently selected one.

F3: SET

Accessing this function allows the administrator and each user to set up an individual working environment. A separate profile for each operator is stored by the OSD and is activated according to the username provided during login.

To change a setting:

1. Double-click it; or move the highlight bar to it, then press **[Enter]**.
2. After you select an item, a submenu with further choices appears. To make a selection, either double click it; or move the highlight bar to it, then press **[Enter]**. An icon appears before the selected choice to indicate which one it is. The settings are explained in the following table:

Setting	Function
OSD HOTKEY	Selects which hotkey activates the OSD function: [Scroll Lock] [Scroll Lock]; [Ctrl] [Ctrl] or [Alt] [Alt]. Since the [Ctrl] or [Alt] key combinations may conflict with programs running on the computers, the default is the [Scroll Lock] combination.
PORT ID DISPLAY POSITION	Allows you to position where the port ID appears on the monitor. The default is the upper left corner, but you can choose to have it appear anywhere on the screen. Use the mouse or the arrow Keys plus Pg Up, Pg Dn, Home, End, and 5 (on the numeric keypad with Num Lock off), to position the port ID display, then click or press [Enter] to lock the position and return to the Set submenu. **Note:** The setting affects the currently selected port. If you don't want to use the default position, you must change the setting for each port individually.
PORT ID DISPLAY DURATION	Determines how long a port ID displays on the monitor after a port change has taken place. There are two choices: **3 seconds** and **Off.**
PORT ID DISPLAY MODE	Selects how the port ID is displayed: the port number alone (**PORT NUMBER**); the port name alone (**PORT NAME**); or the port number plus the port name (**PORT NUMBER + PORT NAME**). The default is PORT NUMBER + PORT NAME).
SCAN DURATION	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan mode (see *F7: SCAN*, page 44). Key in a value from 1–255 seconds, then press **[Enter]**. Default is 5 seconds; a setting of 0 disables the Scan function.

Setting	Function
SCAN/SKIP MODE	Selects which computers will be accessed under Skip mode (see *F5: SKP*, page 42), and Auto Scan mode (see *F7: SCAN*, page 44). Choices are: **ALL** – All the ports which have been set Accessible (see *SET ACCESSIBLE PORTS*, page 39); **QUICK VIEW** – Only those ports which have been set Accessible and have been selected as Quick View Ports (see *SET QUICK VIEW PORTS*, page 38); **POWERED ON** – Only those ports which have been set Accessible and are Powered On; **QUICK VIEW + POWERED ON** – Only those ports which have been set Accessible and have been selected as Quick View Ports and are Powered On. The default is ALL.
SCREEN BLANKER	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 1–30 minutes, then press **[Enter]**. A setting of 0 disables this function. The default is Off.
HOTKEY COMMAND MODE	Enables / Disables the Hotkey function (see *Hotkey Operation*, page 45), in case a conflict with programs running on the computers occurs. The default is On.
HOTKEY	This setting selects the Hotkey invocation keys (see *Hotkey Operation*, page 45). Choices are **[NUM LOCK] + [-]**, or **[CTRL] + [F12]**. The default is **[NUM LOCK] + [-]**.
OSD LANGUAGE	Sets the language that the OSD displays in. Choices are: English, German, Japanese, Simplified Chinese and Traditional Chinese.The default is English.
SET CONSOLE KEYBOARD	Sets the keyboard language mapping of the console keyboard. The default is Auto. If the switch does not automatically receive language mapping from the keyboard, it will set to English (US).
SET LOGOUT TIMEOUT	If there is no input from the console for the amount of time set with this function, the operator is automatically logged out. A login is necessary before the console can be used again. This enables other operators to gain access to the computers when the original operator is no longer accessing them, but has forgotten to log out. To set the timeout value, key in a number from 1–180 minutes, then press **[Enter]**. If the number is 0 (zero), this function is disabled. Default is Off. **Note: T**his feature does not function if Set Login Mode is disabled. See See *SET LOGIN MODE*, page 41.
ACTIVATE BEEPER	Choices are **Y** (for Yes), or **N** (for No). When activated, the beeper sounds whenever a port is changed, when activating the Auto Scan function (see *F7: SCAN*, page 44), or an invalid entry is made on an OSD menu. The default is On.

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(Continued from previous page.)

Setting	Function
SET QUICK VIEW PORTS	This function lets the administrator select which ports to include as Quick View ports. ◆ To select/deselect a port as a Quick View Port, use the navigation keys to move the highlight bar to it, then press the [Spacebar]. ◆ When a port has been selected as a Quick View Port, an arrowhead displays in the QV column of the LIST on the Main Screen to indicate so. When a port is deselected, the arrowhead disappears. ◆ If one of the Quick View options is chosen for the LIST view (see *F2: LIST*, page 35), only a port that has been selected here will display on the List. ◆ If one of the Quick View options is chosen for Auto Scanning (see *SCAN/SKIP MODE*, page 37), only a port that has been selected here will be Auto Scanned. The default is for no ports to be selected.
TOUCHPAD	Enables / Disables the touchpad function of the console. Choices are **Y** (for Yes), or **N** (for No). The active status (Touchpad On / Touchpad Off) is also shown.

F4: ADM

F4 is an administrator only function. Accessing this function allows the administrator to configure and control the overall operation of the OSD. To change a setting double click it; or use the up and down arrow keys to move the highlight bar to it, then press **[Enter]**.

After you select an item, a submenu with further choices appears. Double click the choice you want, or move the highlight bar to it, then press **[Enter]**. An icon appears before the selected choice. The settings are explained in the table on the next three pages:

Setting	Function
SET USER ACCOUNT	This function is used to set usernames and passwords for the administrator and users: ◆ One Administrator and 10 user passwords can be set. ◆ After you select the administrator field or one of the user fields, a screen that allows you to key in your username and password appears. The username and password may be up to 16 characters long, and can consist of any combination of letters and numbers (A–Z, 0–9). ◆ For each individual, key in the username and password, then press **[Enter]**. ◆ To modify or delete a previous username and/or password, use the backspace key to erase individual letters or numbers. ◆ The ☼ icon indicates data is stored in the account.
SET ACCESSIBLE PORTS	This function allows the administrator to define user access to the computers on the installation on a port-by-port basis. For each user, select the target port, then press the [Spacebar] to cycle through the choices: **F** (Full access), **V** (View Only), or **N** (No Access). Repeat until all access rights have been set, then press [Esc]. The default is **F** for all users on all ports. **Note:** An **N** setting means that no access rights are granted. The port will not show up on the user's LIST on the Main Screen.

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Setting	Function
EDIT PORT NAMES	To identify which computer is attached to a particular port, every port can be assigned a name. This function allows the administrator to create, modify, or delete port names. To assign a port name: 1. Click the port you want, or use the navigation keys to move the highlight bar to it, then press **[Enter]**. 2. Key in the new port name, or modify/delete the old one. The maximum number of characters allowed for the port name is 14. Legal characters include: ◆ All alpha characters: **A–Z*** ◆ All numeric characters: **0–9** *You can enter the port names in either upper or lower case however the OSD displays the port name only in UPPERCASE. 3. When you have finished editing, press **[Enter]** to have the change take effect. To abort the change, press **[Esc]**.
RESTORE DEFAULT VALUES	This function is used to undo all changes and return the setup to the original factory default settings (see *OSD Factory Default Settings*, page 73) – except for the *Names* settings that were assigned to the ports, which are saved.
CLEAR THE NAME LIST	This function clears the port name list.
RESET STATION IDS	If you change the position of one of the stations in the daisy chain, the OSD settings will no longer correspond to the new situation. This function directs the OSD to rescan the station positions of the entire installation and updates the OSD so that the OSD station information corresponds to the new physical layout. **Note:** Only the station numbers get updated. Except for the port names, all administrator settings (such as Set Accessible Ports, Set Quick View Ports, etc.), for all of the computers affected by the change, have to be manually redone.
SET OPERATING SYSTEM	Specifies the operating platform of the computer attached to each port. You must configure each port on the installation. For each port, press the [Spacebar] to cycle through the choices (PC, Mac or Sun). Repeat until all the ports have been set, then press [Esc]. The default is PC. **Note:** If you are installing a Sun or Mac computer it may not boot when you run it for the first time unless you first set the correct operating system for the port it is connected to.

Setting	Function
SET CAT 5 LENGTH	Lets you specify how long the Cat 5/6e cable between the port and the KVM adapter cable is. Press **[Spacebar]** to cycle through the cable length settings: **S**: Short – for up to 25 m **M**: Medium – for between 20 and 35 m **L**: Long – for above 35 m An S, M, or L appears next to the port to indicate the choice.
SET KEYBOARD LANGUAGE	Sets the keyboard language layout for the computers attached to each port. Press **[Spacebar]** to cycle through the choices: The default is English (US).
SET CONSOLE MODE	This setting selects which console(s) (internal/external) are enabled: **0** Both consoles enabled **1** LCD Console only **2** External console only Use the spacebar to cycle through the choices. The default is 0. Changes will not be saved until you logout.
FIRMWARE UPGRADE	In order to upgrade the KL1508A / KL1516A and adapter cable firmware (see *The Firmware Upgrade Utility*, page 57) you must first enable *Firmware Upgrade* mode with this setting. When you bring up this menu, the current firmware version levels display. Select **Y** to enable Firmware Upgrade mode, or **N** to leave this menu without enabling it.
ADAPTER UPGRADE	This function allows the administrator to check the firmware version of the KVM adapter cable. When you bring up this menu, the current firmware version levels display. See *FIRMWARE UPGRADE*, above, also.
SET LOGIN MODE	This function allows the administrator to request users to login or not. When the login dialog box is disabled, the system disables the login/logout function. If the system is re-started, the login/logout function remains disabled.

F5: SKP

This function enables you to easily skip backward or forward, switching the console focus from the currently active KVM Port to the previous or next available one.

- The selection of computers to be available for Skip mode switching is made with the *Scan/Skip* mode setting under the **F3 SET** function (see page 37).
- When you are in Skip mode, press:

←	To skip to the previous port in the List.
→	To skip to the next port in the List.
↑	To skip to the last port of the previous station in the List.
↓	To skip to the first port of the next station in the List.

Note: When you skip, you only skip to the previous or next available computer that is in the *Scan/Skip* mode selection (see page 37).

- If a port has been selected for *Scan/Skip* mode, when the focus switches to that port a left/right triangle symbol appears before its port ID display.
- While Skip mode is in effect, the console will not function normally. You must exit Skip mode in order to regain control of the console.
- To exit Skip mode, press the [Spacebar] or [Esc].

F6: BRC

F6 is an administrator only function. When this function is in effect, commands sent from the console are broadcast to all available computers on the installation.

This function is particularly useful for operations that need to be performed on multiple computers, such as performing a system wide shutdown, installing or upgrading software, etc.

- While BRC mode is in effect, a speaker symbol appears before the port ID display of the port that currently has the console focus.
- While BRC mode is in effect, the mouse will not function normally. You must exit BRC mode in order to regain control of the mouse.
- To exit BRC mode, invoke the OSD (with the OSD Hotkey), then click the **F6** field, or press [F6], to turn BRC mode off.

F7: SCAN

This function automatically switches among the available computers at regular intervals so that you can monitor their activity without having to take the trouble of switching manually.

- The selection of computers to be included for Auto Scanning is made with the *Scan/Skip* mode setting under the **F3 SET** function (see page 37).
- The amount of time that each port displays for is set with the *Scan Duration* setting under the **F3 SET** function (see page 36).
- As each computer is accessed, an **S** appears in front of the port ID display to indicate that it is being accessed under *Auto Scan* mode.
- While you are in Auto Scan mode, you can pause the scanning in order to keep the focus on a particular computer either by pressing **P**, or with a left click of the mouse. To resume scanning, press any key or left click again. See *Auto Scan Mode Switching*, page 48, for details.
- While Auto Scan mode is in effect, the console will not function normally. You must exit Auto Scan mode in order to regain control of the console.
- To exit Auto Scan mode, press the [Spacebar] or [Esc].

F8: LOUT

Clicking the **F8** field, or pressing **[F8]**, logs you out of the OSD and blanks the console screen. This is different from simply deactivating the OSD when you are at the Main Screen by pressing [Esc].

With this function you must log in all over again to regain access to the OSD, whereas with [Esc], all you have to do to reenter the OSD is tap the OSD Hotkey.

Note: 1. When you reenter the OSD after logging out, the screen stays blank except for the login dialog box. You must input your username and password before you can continue (see page 31). If login has been disabled by the administrator (see page 41), the F8 function is also disabled.

2. If you reenter the OSD after logging out, and immediately use [Esc] to deactivate the OSD without having selected a port from the OSD menu, a Null Port message displays on the screen. The OSD hotkey will bring up the OSD Main Screen.

Chapter 5
Hotkey Operation

Hotkey Port Control

Hotkey port control allows you to provide KVM focus to a particular computer directly from the keyboard. The KL1508A / KL1516A provides the following Hotkey port control features:

- Selecting the Active Port
- Auto Scan Mode Switching
- Skip Mode Switching
- Computer Keyboard / Mouse Reset

The following settings can also be controlled in *Hotkey* mode:

- Setting the Beeper
- Setting the Quick Hotkey
- Setting the OSD Hotkey
- Setting the Port Operating System
- Restoring the OSD Default Values

Invoking Hotkey Mode

All Hotkey operations begin by invoking *Hotkey* mode.[1] To invoke *Hotkey* mode you may use two possible keystroke sequences shown below. Only one of the two key-sequences below can be operational (see *Setting the Hotkey key combination* on page 52):

Number Lock and Minus Keys

1. Hold down the **[Num Lock]** key;
2. Press and release the **[Minus]** key;
3. Release the **[Num Lock]** key:

   [Num Lock] + [-]

Control and F12 Keys

1. Hold down the **[Ctrl]** key;
2. Press and release the **[F12]** key;
3. Release the **[Ctrl]** key:

   [Ctrl] + [F12]

Hotkey Mode Environment

When *Hotkey* mode is active:

- A command line appears on the monitor screen. The command line prompt is the word *Hotkey:* in white text on a blue background, and displays the subsequent Hotkey information that you key in.
- Ordinary keyboard and mouse functions are suspended – only Hotkey compliant keystrokes (described in the sections that follow), can be input.

Exiting Hotkey Mode

Pressing **[Esc]** exits Hotkey mode.

1. Make sure that the *Hotkey Command Mode* function is enabled and that you key in the appropriate *Hotkey.* See page 37 for details.

Selecting the Active Port

Each computer port is assigned a port ID (see *Port ID Numbering*, page 29). You can directly access any computer with a Hotkey combination that specifies the port ID that the computer is connected to. The steps are:

1. Enter the Hotkey mode with the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination**.**

2. Key in the port ID.

   The port ID numbers display on the command line as you key them in. If you make a mistake, use **[Backspace]** to erase it.

3. Press **[Enter].**

   After you press [Enter], the KVM focus switches to the designated computer and you automatically exit Hotkey mode.

Note: In Hotkey mode, the KVM focus will not switch to a port if an invalid switch or port number is entered. The Hotkey command line will continue to display on the screen until you enter a valid switch and port number combination, or exit Hotkey mode.

Auto Scan Mode Switching

Auto Scan automatically switches among all the active computer ports that are accessible to the currently logged on user at regular intervals. This allows their activity to be monitored automatically (See *SKAN/SKIP MODE* of the OSD F3 SET function, page 37).

Setting the Scan Interval

The amount of time Auto Scan keeps the focus on each port is set with the *SCAN DURATION* setting of the OSD **F3 SET** function (see page 36). You can change the scan interval, before you activate Hotkey Auto Scanning, by entering the following Hotkey combination:

1. Enter the Hotkey mode:

   [Num Lock] + [-] or [Ctrl] + [F12] combination.

2. Key in **[A][n]**

   Where **[A]** is the letter **A**, and **[n]** is a number from 1–255 that represents the length of the focus time in seconds.

   The letter **A** and the numbers display on the command line as you key them in. Use **[Backspace]** to erase any wrong entry.

3. Press **[Enter]**

   After you press [Enter], you exit Hotkey mode, and are ready to start Auto Scanning.

Entering Auto Scan

To enter the Auto Scanning mode, key in the following Hotkey combination:

1. Enter the Hotkey mode:

   [Num Lock] + [-] or [Ctrl] + [F12] combination.

2. Press **[A] + [Enter]**.

   - While you are in Auto Scan mode, you can pause the scanning to keep the focus on a particular computer by pressing **[P]**. When Auto Scanning is paused, the Command Line displays: **Auto Scan: Paused.**

   When you want to keep the focus on a particular computer, *Pausing* is more convenient than exiting Auto Scan mode. When you resume scanning it starts at the computer where you paused. If you exited and

then restarted Auto Scanning, it starts, at the beginning, from the first computer on the installation.

To resume Auto Scanning, press any key. Scanning continues from the computer you paused at.

- While the Auto Scan mode is operating, ordinary keyboard and mouse functions are suspended - only Auto Scan mode compliant keystrokes can be input. You must exit Auto Scan mode to regain normal control of the console.

Exiting Auto Scan

1. To exit Auto Scan mode press **[Esc]** or **[Spacebar]**. Auto Scanning stops when you exit Auto Scan mode.

Skip Mode Switching

This feature allows you to switch between computers in order to monitor them manually. You can focus on a particular port for as long as you like – as opposed to auto-scanning, which automatically switches the port focus after a fixed interval.

Entering Skip Mode

To enter *Skip* mode, key in the following Hotkey combination:

1. Enter the Hotkey mode by pressing the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination.

2. Press one of the **[Arrow]** keys.

   After you press one of the keyboard arrows, you automatically exit Hotkey mode and enter *Skip* mode where you can switch ports as follows:

←	Skips to the first accessible port. (See *SCAN/SKIP MODE*, page 37, for information regarding accessible ports.)
→	Skips to the next accessible port.
↑	Skips to the last accessible port of the previous station.
↓	Skips to the first accessible port of the next station.

   Once you are in *Skip* mode, you can continue skipping by pressing the arrow keys. You do not have to use the [Num Lock] + [-] combination again.

   While *Skip* mode is in effect, ordinary keyboard and mouse functions are suspended – only *Skip* mode compliant keystrokes can be input. You must exit *Skip* mode to regain normal control of the console.

Exiting Skip Mode

1. To exit *Skip* mode, press [Esc] or [Spacebar].

Computer Keyboard / Mouse Reset

If either the keyboard or mouse stop functioning on the computer connected to the currently selected port, you can perform a keyboard / mouse reset on the computer by executing the following steps:

1. Enter the Hotkey mode with the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination**.**

2. Press **[F5].**

   After you press [F5] you automatically exit *Hotkey* mode and regain keyboard and mouse control on the computer connected to the KVM port. If you fail to regain keyboard / mouse control on the computer after pressing [F5], perform a system reset. For more information see *Lock LEDs & Reset Switch*, page 8.

   This function is essentially the same as unplugging and replugging the keyboard and mouse on the target computer.

Setting the Hotkey Beeper ON/OFF

The beeper (see Activate Beeper, page 37) can be turned on and off with Hotkeys by the following steps:

1. Enter the Hotkey mode with the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination**.**

2. Press **[B]**.

After you press **[B]**, the beeper turns on or off. The command line displays *Beeper On* or *Beeper Off* for one second; then the message disappears and you automatically exit Hotkey mode.

Setting the Hotkey key combination

The keys used to enter the *Hotkey Mode* (see *HOTKEY COMMAND MODE*, page 37) can be switched between:

[Num Lock] + [-], and **[Ctrl] + [F12]**

by the following steps:

1. Enter the Hotkey mode with the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination.

2. Press **[H]**.

   After you press [H], the command line displays *HOTKEY HAS BEEN CHANGED* for one second; then the message disappears and you automatically exit *Hotkey* mode.

Setting the OSD Hotkey combination

The *Hotkeys* used to access the *OSD* (see *OSD HOTKEY*, page 36) can be switched between **[Scroll Lock], [Scroll Lock], [Ctrl], [Ctrl],** and **[Alt], [Alt]** by the following steps:

1. Enter the Hotkey mode with the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination.

2. Press **[T]**.

After you press **[T]**, the command line displays *HOTKEY HAS BEEN CHANGED* for one second; then the message disappears and you automatically exit *Hotkey* mode.

Setting the Port Operating System

A port's operating system configuration can be matched to that of the computer attached to the port by performing the following steps:

1. Enter the Hotkey mode with the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination.

2. Press a **[Function]** key, where **[Function]** refers to one of the function keys in the following table:

Key	Description
F1	Sets the Port OS to Windows
F2	Sets the Port OS to Mac
F3	Sets the Port OS to Sun

After pressing a function key you automatically exit *Hotkey* mode.

Restore the Default Values

This administrator-only Hotkey restores the KL1508A / KL1516A default values (see *RESTORE DEFAULT VALUES* on page 40) by performing the following steps:

1. Enter the Hotkey mode with the:

   [Num Lock] + [-] or [Ctrl] + [F12] combination.

2. Press **[R]**.

3. Press **[Enter]**.

After you press **[Enter]**, the command line displays *RESET TO DEFAULT SETTING* for three seconds; then the message disappears and you automatically exit *Hotkey* mode.

Hotkey Summary Table

[Num Lock] + [-] or [Ctrl] + [F12]	[A] [Enter]	Invokes *Auto Scan* mode. When *Auto Scan* mode is in effect, [P] or left-click pauses auto-scanning. When auto-scanning is paused, pressing any key or another left-click resumes auto-scanning.
	[B]	Toggles the Beeper On or Off.
	[Esc] or [Spacebar]	Exits hotkey mode.
	[F1]	Sets Operating System to Windows
	[F2]	Sets Operating System to Mac
	[F3]	Sets Operating System to Sun
	[F5]	Performs a keyboard / mouse reset on the target computer.
	[H]	Toggles the Hotkey invocation keys.
	[Port ID] [Enter]	Switches access to the computer that corresponds to that Port ID.
	[R] [Enter]	Administrator only hotkey. It returns the switch's settings to their default values.
	[T]	Toggles the *OSD Hotkey* between [Ctrl] [Ctrl] and [Scroll Lock] [Scroll Lock].
	[←]	Invokes Skip Mode and skips from the current port to the first accessible port previous to it.
	[→]	Invokes Skip Mode and skips from the current port to the next accessible port.
	[↑]	Invokes Skip Mode and skips from the current port to the last accessible port of the previous Station.
	[↓]	Invokes Skip Mode and skips from the current port to the first accessible port of the next Station.

Chapter 6
Keyboard Emulation

Mac Keyboard

The PC compatible (101/104 key) keyboard can emulate the functions of the Mac keyboard. The emulation mappings are listed in the table below.

PC Keyboard	Mac Keyboard
[Shift]	Shift
[Ctrl]	Ctrl
[Ctrl] [1]	
[Ctrl] [2]	
[Ctrl] [3]	
[Ctrl] [4]	
[Alt]	Alt
[Print Screen]	F13
[Scroll Lock]	F14
	=
[Enter]	Return
[Backspace]	Delete
[Insert]	Help
[Ctrl]	F15

Note: When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

Sun Keyboard

The PC compatible (101/104 key) keyboard can emulate the functions of the Sun keyboard when the Control key [Ctrl] is used in conjunction with other keys. The corresponding functions are shown in the table below.

PC Keyboard	Sun Keyboard
[Ctrl] [T]	Stop
[Ctrl] [F2]	Again
[Ctrl] [F3]	Props
[Ctrl] [F4]	Undo
[Ctrl] [F5]	Front
[Ctrl] [F6]	Copy
[Ctrl] [F7]	Open
[Ctrl] [F8]	Paste
[Ctrl] [F9]	Find
[Ctrl] [F10]	Cut
[Ctrl] [1]	
[Ctrl] [2]	
[Ctrl] [3]	
[Ctrl] [4]	
[Ctrl] [H]	Help
	Compose
	◆

Note: When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

Chapter 7
The Firmware Upgrade Utility

Introduction

The purpose of the Windows-based Firmware Upgrade Utility is to provide an automated process for upgrading the KL1508A / KL1516A and compatible adapter cable firmware. The program comes as part of a Firmware Upgrade Package that is specific for each device.

The latest revisions of new firmware for the KL1508A / KL1516A, and supported KVM Adapter Cables are posted as Firmware Upgrade Packages on our web site. Check the website regularly to find the latest firmware packages and information relating to them.

Note: 1. A single upgrade package contains the upgrade files for the Main Board and all the supported KVM Adapter Cables.

2. KVM Adapter Cables are referred to as *I/O Modules* in some dialog boxes.

Before You Begin

To prepare for the firmware upgrade, do the following:

1. From a computer that is not part of your KVM installation go to the ATEN Internet support site and choose the model name that relates to your device to get a list of available Firmware Upgrade Packages.
2. Choose the Firmware Upgrade Package you want to install (usually the most recent), and download it to your computer.

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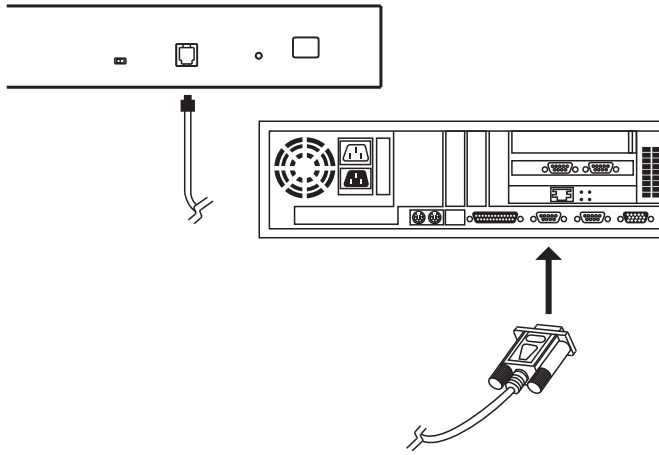
3. Use the firmware upgrade cable (provided with this unit), to connect a COM port on your computer to the firmware upgrade port of your device.



Note: On a daisy chained installation, connect the cable to the first station (master) unit. The chained stations (slaves) that are the same model will receive the upgrade via the daisy chain cables.

4. Shut down all of the computers except those that are attached to cable adapters that require upgrade. The cable adapters require the computers power source to be upgraded. Do not shut down the stations on the KVM installation that you want to upgrade.
5. From your KVM switch console, bring up the OSD (see page 31) and select the **F4ADM** function.
6. Scroll down to FIRMWARE UPGRADE. Press **[Enter]**, then press **[Y]** to start the Firmware Upgrade mode (see page 41).

Note: The upgrade to the KVM Adapter Cables takes place via the Cat 5e/6 cable that connects the adapter cable to the KVM switch, so there is no separate firmware upgrade cable to attach.

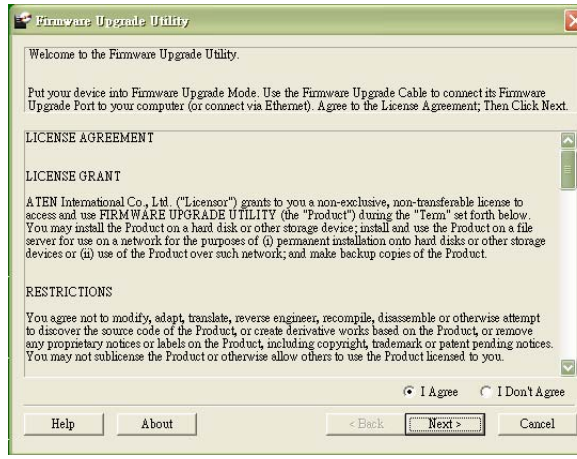
Performing the Upgrade

Starting the Upgrade

To upgrade your firmware:

1. Run the downloaded Firmware Upgrade Package file, either by double clicking the file icon, or by opening a command line and keying in the full path to it.

   The Firmware Upgrade Utility *Welcome* screen appears:


Firmware Upgrade Utility
Welcome to the Firmware Upgrade Utility.
Put your device into Firmware Upgrade Mode. Use the Firmware Upgrade Cable to connect its Firmware Upgrade Port to your computer (or connect via Ethernet). Agree to the License Agreement; Then Click Next.
LICENSE AGREEMENT
LICENSE GRANT
ATEN International Co., Ltd. ("Licensor") grants to you a non-exclusive, non-transferable license to access and use FIRMWARE UPGRADE UTILITY (the "Product") during the "Term" set forth below. You may install the Product on a hard disk or other storage device; install and use the Product on a file server for use on a network for the purposes of (i) permanent installation onto hard disks or other storage devices or (ii) use of the Product over such network; and make backup copies of the Product.
RESTRICTIONS
You agree not to modify, adapt, translate, reverse engineer, recompile, disassemble or otherwise attempt to discover the source code of the Product, or create derivative works based on the Product, or remove any proprietary notices or labels on the Product, including copyright, trademark or patent pending notices. You may not sublicense the Product or otherwise allow others to use the Product licensed to you.
I Agree
I Don't Agree
Help
About
< Back
Next >
Cancel

2. Read and *Agree* to the License Agreement (enable the I Agree radio button).

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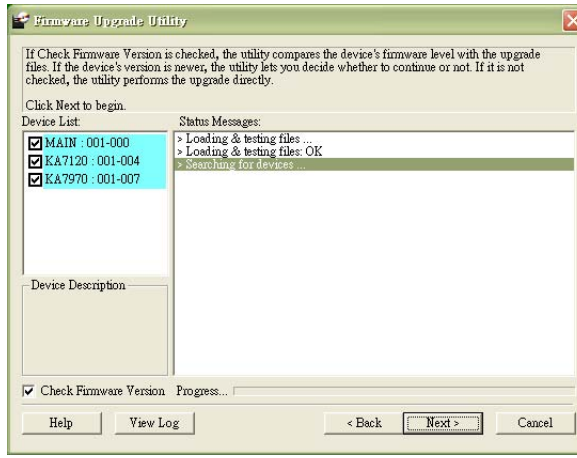
3. Click **Next** to continue. The Firmware Upgrade Utility main screen appears:

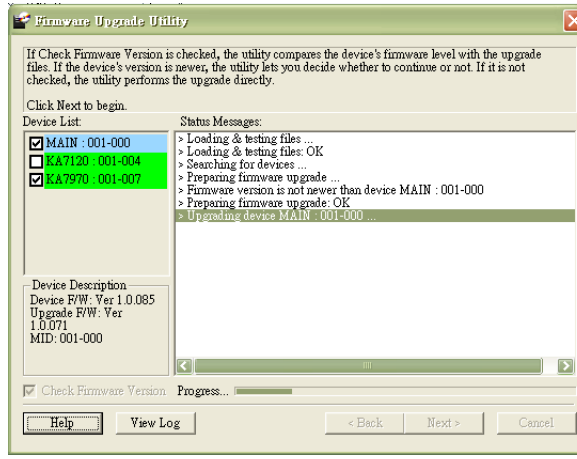

Firmware Upgrade Utility
If Check Firmware Version is checked, the utility compares the device's firmware level with the upgrade files. If the device's version is newer, the utility lets you decide whether to continue or not. If it is not checked, the utility performs the upgrade directly.
Click Next to begin.
Device List:
MAIN : 001-000
KA7120 : 001-004
KA7970 : 001-007
Status Messages:
> Loading & testing files ...
> Loading & testing files: OK
> Searching for devices ...
Device Description
Check Firmware Version
Progress...
Help
View Log
< Back
Next >
Cancel

The Utility checks to make sure the KL1508A / KL1516A is in the Firmware Upgrade Mode and then lists all firmware needed preselected in the *Device List* panel.

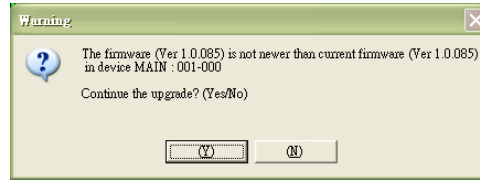
Note: 1. The Device List lists all the models of KVM Adapter Cable that require upgrading. Selecting the model will upgrade all the devices of that particular model.

2. If the Utility fails to list any firmware check that the KL1508A / KL1516A is connected and in the Firmware Upgrade Mode. Alternatively the Firmware Package maybe corrupted or the wrong version therefore obtain a new copy of the file and retry.

4. Select MAIN to upgrade the firmware for the Main Board. Deselect any KVM Adapter Cable types that are not required to be upgraded. After you have made your selection(s), click **Next** to perform the upgrade.


Firmware Upgrade Utility
If Check Firmware Version is checked, the utility compares the device's firmware level with the upgrade files. If the device's version is newer, the utility lets you decide whether to continue or not. If it is not checked, the utility performs the upgrade directly.
Click Next to begin.
Device List:
MAIN : 001-000
KA7120 : 001-004
KA7970 : 001-007
Status Messages:
> Loading & testing files ...
> Loading & testing files: OK
> Searching for devices ...
> Preparing firmware upgrade ...
> Firmware version is not newer than device MAIN : 001-000
> Preparing firmware upgrade: OK
> Upgrading device MAIN : 001-000 ...
Device Description
Device F/W: Ver 1.0.085
Upgrade F/W: Ver 1.0.071
MID: 001-000
Check Firmware Version
Progress...
Help
View Log
< Back
Next >
Cancel

- *Check Firmware Version* - when selected the utility compares the Main Board firmware level with the upgrade files MAIN. If the device versions are higher than the upgrade versions a dialog box informs you and gives you the option to continue or cancel.


Warning
The firmware (Ver 1.0.085) is not newer than current firmware (Ver 1.0.085) in device MAIN : 001-000
Continue the upgrade? (Yes/No)
(Y)
(N)

  If you didn't enable *Check Firmware Version*, the utility installs the upgrade files without checking whether they are a higher level, or not.

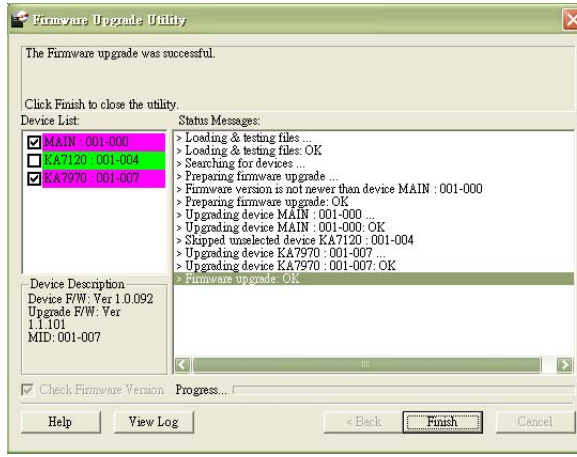
- As the upgrade proceeds status messages appear in the *Status Messages* panel, and the progress toward completion is shown on the *Progress* bar.
- To abort the upgrade procedure before it completes, click **Cancel**.

  If you cancel before completion, a dialog box warns you that the upgrade will not finish and shows the options to proceed or abort the cancel operation. The Mainboard and OSD firmware may be missing or corrupted upon rebooting the switch.

To recover from missing or corrupt firmware, see *Firmware Upgrade Recovery*, page 63.

Upgrade Succeeded

After the upgrade has completed, a screen appears to inform you that the procedure was successful:


Firmware Upgrade Utility
The Firmware upgrade was successful.
Click Finish to close the utility.
Device List:
MAIN : 001-000
KA7120 : 001-004
KA7970 : 001-007
Status Messages:
> Loading & testing files ...
> Loading & testing files: OK
> Searching for devices ...
> Preparing firmware upgrade ...
> Firmware version is not newer than device MAIN : 001-000
> Preparing firmware upgrade: OK
> Upgrading device MAIN : 001-000 ...
> Upgrading device MAIN : 001-000: OK
> Skipped unselected device KA7120 : 001-004
> Upgrading device KA7970 : 001-007 ...
> Upgrading device KA7970 : 001-007: OK
> Firmware upgrade: OK
Device Description
Device F/W: Ver 1.0.092
Upgrade F/W: Ver 1.1.101
MID: 001-007
Check Firmware Version
Progress...
Help
View Log
< Back
Finish
Cancel

Click **Finish** to close the Firmware Upgrade Utility.

Note: At the completion of the upgrade, the KL1508A / KL1516A restarts.

Upgrade Failed

If the upgrade failed to complete successfully a dialog box appears asking if you want to retry. Click **Yes** to retry. If you click **No**, the *Upgrade Failed* screen appears.

Click **Cancel** to close the Firmware Upgrade Utility. See the next section, *Firmware Upgrade Recovery*, for how to proceed.

Firmware Upgrade Recovery

Should the firmware on the switch be missing or corrupted it may not be possible to operate or boot the switch. This could be due to:

- Starting the Firmware Upgrade mode (see *FIRMWARE UPGRADE*, page 41), and then canceling the upgrade.
- An interruption of the firmware upgrade.
- The firmware upgrade procedure failing.
- The unit's firmware becoming corrupted for unknown reasons.

Main Board Firmware Upgrade Recovery

To perform a firmware upgrade recovery, do the following:

1. On the KVM Switch slide the *Firmware Upgrade Recovery Switch* (see page 8) to the **Recover** position.
2. Power off and restart the switch according to the instructions given in the *Powering Off and Restarting* section (see page 29).
3. Proceed with the firmware upgrade as described in *Performing the Upgrade*, starting on page 59.
4. When the upgrade ends, power off the switch
5. Slide the *Firmware Upgrade Recovery Switch* back to the **Normal** position.
6. Power on the switch.

Note: If one of the child KVM units fails to upgrade successfully, unchain it from the installation and perform the recovery and upgrade operation on it independently. After it has been successfully upgraded, plug it back into the chain

Adapter Cable Firmware Upgrade Recovery

To perform an adapter cable firmware upgrade recovery, do the following:

1. Unplug the adapter cable from the computer it is connected to.
2. Slide its *Firmware Upgrade Recovery Switch* (located next to the RJ45 connector) to the **Recover** position.
3. Plug the adapter cable back into the computer.
4. From your KVM switch console, bring up the OSD (see page 32) and select the **F4ADM** function.
5. Scroll down to *FIRMWARE UPGRADE*. Press **[Enter]**.
6. Press **[Y]** to invoke Upgrade mode.
7. Proceed with the firmware upgrade as described in *Performing the Upgrade*, starting on page 59.
8. After the upgrade completes and the switch restarts, unplug the adapter cable from the computer and slide the *Firmware Upgrade Recovery Switch* back to the **Normal** position.
9. Plug the adapter cable back into the computer.

Appendix

Safety Instructions

General

- Read all of these instructions. Save them for future reference.
- Follow all warnings and instructions marked on the device.
- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- Do not use the device near water.
- Do not place the device near, or over, radiators or heat registers.
- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- Never spill liquid of any kind on the device.
- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- The device is designed for IT power distribution systems with 230V phase-to-phase voltage.
- To prevent damage to your installation it is important that all devices are properly grounded.
- The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.
- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Position system cables and power cables carefully; Be sure that nothing rests on any cables.
- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
  - The power cord or plug has become damaged or frayed.
  - Liquid has been spilled into the device.
  - The device has been exposed to rain or water.
  - The device has been dropped, or the cabinet has been damaged.
  - The device exhibits a distinct change in performance, indicating a need for service.
  - The device does not operate normally when the operating instructions are followed.
- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- Do not connect the RJ-11 connector marked “UPGRADE” to a public telecommunication network.

Rack Mounting

- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.
- Always load the rack from the bottom up, and load the heaviest item in the rack first.
- Make sure that the rack is level and stable before extending a device from the rack.
- Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.
- After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.
- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.
- Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.
- Ensure that proper airflow is provided to devices in the rack.
- Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer
- Do not step on or stand on any device when servicing other devices in a rack.
- **Caution:** Slide/rail (LCD KVM) mounted equipment is not to be used as a shelf or a work space.

Technical Support

International

- For online technical support – including troubleshooting, documentation, and software updates: **http://support.aten.com**
- For telephone support, see *Telephone Support*, page iii.

North America

Email Support		support@aten-usa.com
Online Technical Support	Troubleshooting Documentation Software Updates	http://www.aten-usa.com/support
Telephone Support		1-888-999-ATEN ext 4988

When you contact us, please have the following information ready beforehand:

- Product model number, serial number, and date of purchase.
- Your computer configuration, including operating system, revision level, expansion cards, and software.
- Any error messages displayed at the time the error occurred.
- The sequence of operations that led up to the error.
- Any other information you feel may be of help.

Specifications

Function			KL1508A	KL1516A
Computer Connections	Direct		8	16
	Max.		256 (via Daisy Chain)	512 (via Daisy Chain)
Port Selection			OSD (On Screen Display); Hotkeys Pushbuttons	
Connectors	Console	Keyboard	1 x 6-pin Mini-DIN Female (Purple); 1 x USB Type A Female	
		Video	1 x HDB-15 Female (Blue)	
		Mouse	1 x 6-pin Mini-DIN Female (Green); 1 x USB Type A Female	
	KVM Ports		8 x RJ-45 Female (Black)	16 x RJ-45 Female (Black)
	Daisy Chain	Out	1 x DB-25 Male (Black)	
	F/W Upgrade		1 x RJ-11 Male (Black)	
	Power		1 x 3-Prong AC socket	
	External Mouse		1 x USB Type A Female	
Switches	Port Selection		8 x Pushbutton	16 x Pushbutton
	KVM Reset		1 x Semi-recessed Pushbutton	
	F/W Upgrade		1 x Slide	
	Power		1 x Rocker	
	LCD Power		1 x Pushbutton	
	LCM Adjustment		4 x Pushbutton	
	Station		2 x Pushbutton	
LEDs	Port	On Line	8 (Green)	16 (Green)
		Selected	8 (Orange)	16 (Orange)
	Power		1 (Blue)	
	Station ID		1 x 2 Digit 7-segment (Orange)	
	Lock		1 x Num Lock(Green)	
			1 x Caps Lock(Green)	
			1 x Scroll Lock(Green)	
	LCD Power		1 (Orange)	
Emulation	Keyboard / Mouse		PS/2; USB (PC, Mac, Sun); Serial	
Video			1280 x 1024 @ 75Hz	
Scan Interval			1 - 255 sec.	
I/P Rating			100-240 VAC; 50/60 Hz; 1A	
Power Consumption	17” LCD		100V 26.2W / 230V 27.4W	
	19: LCD		100V 28.2W / 230V 29.1W	

Function			KL1508A	KL1516A
Environment	Operating Temp.		0 - 40° C	
	Storage Temp.		-20–60° C	
	Humidity		0 - 80% RH, Non-condensing	
Physical Properties	Housing		Metal	
	Weight	17” LCD	16.84 kg	16.86 kg
		19” LCD	18.31 kg	18.33 kg
	Dimensions (L x W x H)	17” LCD	70.90 x 48.20 x 4.40 cm	
		19” LCD	76.00 x 48.20 x 4.40 cm	

Connection Tables

The following table indicates the relationship between the number of KL1508A / KL1516A units and the number of computers that they control

KL1508A

No.	Computers	No.	Computers	No.	Computers	No.	Computers
1	1 - 8	9	65 - 72	17	129 - 136	25	193 - 200
2	9 - 16	10	73 - 80	18	137 - 144	26	201- 208
3	17 - 24	11	81 - 88	19	145 - 152	27	209 - 216
4	25 - 32	12	89 - 96	20	153 - 160	28	217 - 224
5	33 - 40	13	97 - 104	21	161 - 168	29	225 - 232
6	41 - 48	14	105 - 112	22	169 - 176	30	233 - 240
7	49- 56	15	113 - 120	23	177- 184	31	241 - 248
8	57 - 64	16	121 - 128	24	185 - 192	32	249 - 256

KL1516A

No.	Computers	No.	Computers	No.	Computers	No.	Computers
1	1 - 16	9	129 - 144	17	257 - 272	25	385 - 400
2	17 - 32	10	145 - 160	18	273 - 288	26	401 - 416
3	33 - 48	11	161 - 176	19	289 - 304	27	417 - 432
4	49 - 64	12	177 - 192	20	305 - 320	28	433 - 448
5	65 - 80	13	193 - 208	21	321 - 336	29	449 - 464
6	81 - 96	14	209 - 224	22	337 - 352	30	465 - 480
7	97- 112	15	225 - 240	23	353 - 368	31	481 - 496
8	113 - 128	16	241 - 256	24	369 - 384	32	497 - 512

Compatible Switches

The following ATEN switches can be installed on a KL1508A / KL1516A daisy chain:

ACS1208A / ACS1216A	CS1708A / CS1716A	KH1508A / KH1516A

OSD Factory Default Settings

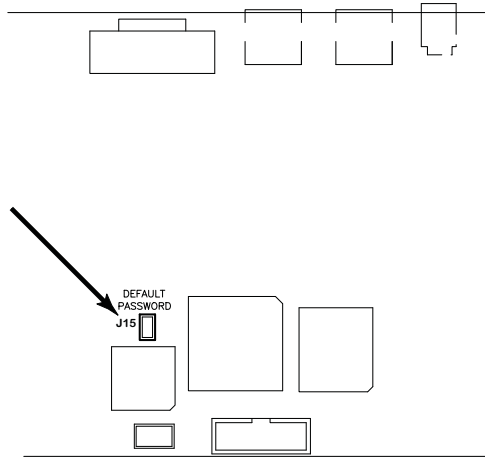
The factory default settings are as follows:

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display Position	Upper Left Corner
Port ID Display Duration	3 Seconds
Port ID Display Mode	The Port Number plus the Port Name
Scan Duration	5 Seconds
Scan/Skip Mode	All
Screen Blanker	OFF
Hotkey Command Mode	ON
Hotkey	[Num Lock] + [-]
Logout Timeout	OFF
Beeper	ON
Accessible Ports	F (Full Access) For all Users on all Ports
Operation Mode	Share
OSD Language	English

Administrator Login Failure

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted or you have forgotten it, for example) you can clear the login information with the following procedure:

1. Power off the KL1508A / KL1516A and remove its housing.
2. Short the jumper labeled **J15**.



3. Power on the switch.

   The on screen display will show a message informing you that the password information has been cleared.
4. Power off the switch.
5. Remove the jumper cap from **J15**.
6. Close the housing and start the KL1508A / KL1516A back up.

After you start back up, you can use the default Username and Password (see *OSD Overview*, page 31) to log in.

Optional Rack Mounting

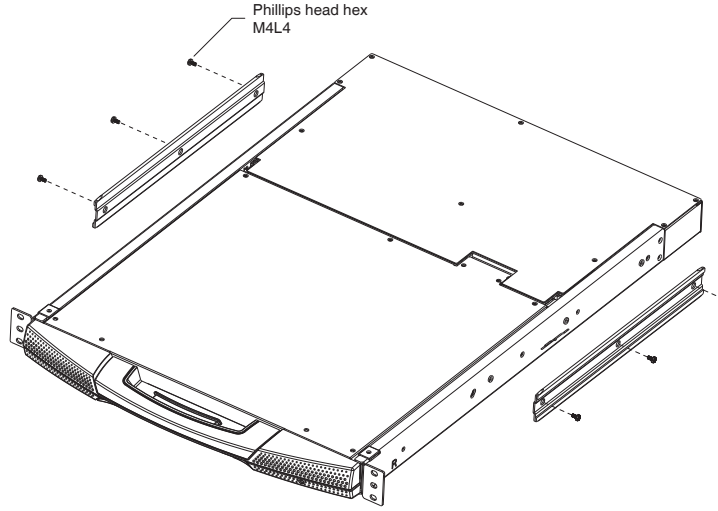
For convenience and flexibility, three optional rack mounting kits are available as shown in the following table:

KVM Model	Bracket Type	Size (cm)
KL1508M / KL1516M	Standard Installation – Long	68.0—105.0
	Easy Installation – Short	57.0—70.0
	Easy Installation – Long	68.0—105.0
KL1508N / KL1516N	Standard Installation – Long	68.0—105.0
	Easy Installation – Short	63.0—70.0
	Easy Installation – Long	74.0—105.0

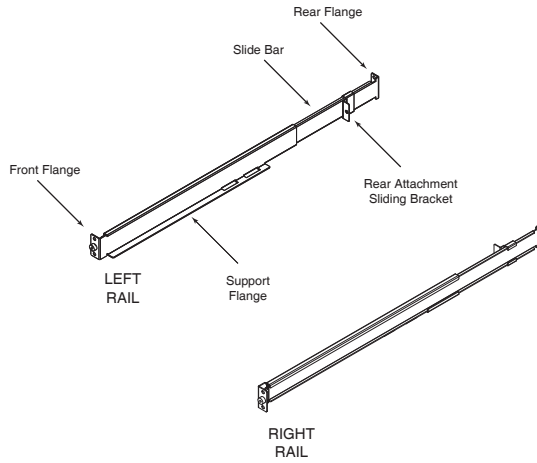
To install the long bracket standard rack mount kit, simply replace the short L brackets on the standard rack mount kit with the long ones, and mount the switch according to the instructions given for *Standard Rack Mounting*, page 12.

While it takes two people to perform a standard installation, with an *Easy-Installation*, kit, one person can mount the switch. To install the *Easy-Installation* kit, do the following:

1. Remove the standard L brackets and the side mounting brackets from both sides of the switch.

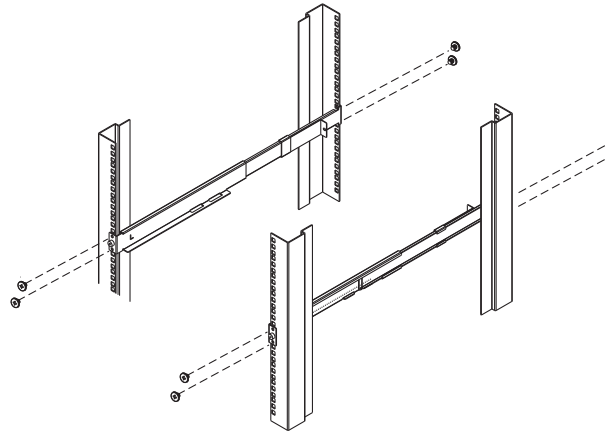


2. Attach the left and right *easy-installation* mounting rails to the inside of the rack. The flange that supports the switch will be to the inside.

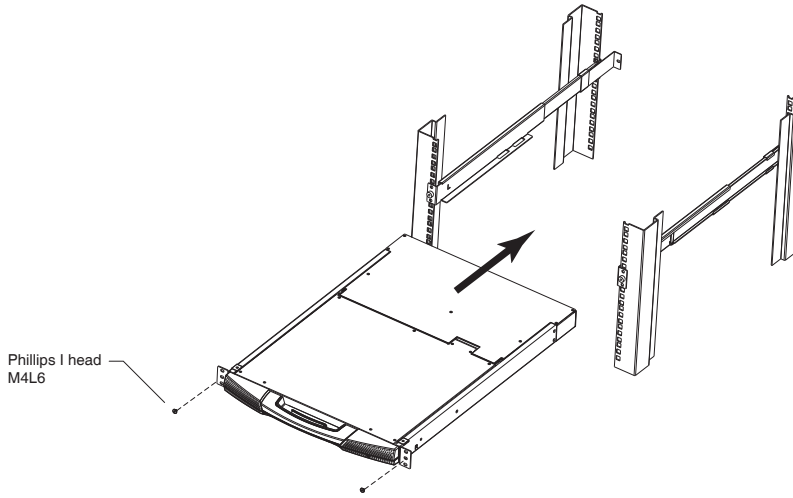


a) Screw the front flanges to the rack first.

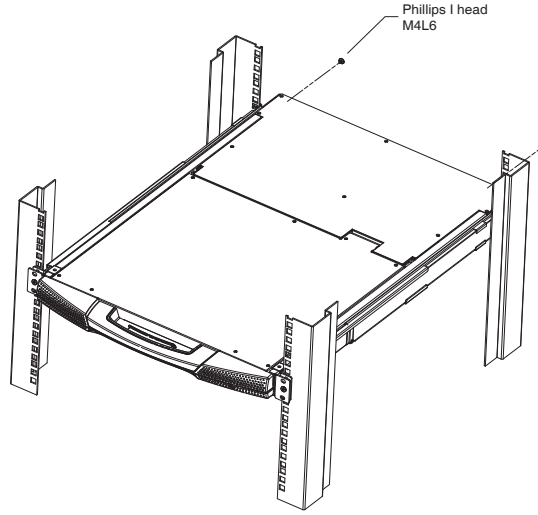
b) Slide the bars with the rear flanges toward the rack until the flanges make contact with the rack, then screw the rear flanges to the rack.



3. Slide the switch onto the support flanges. Use the screws supplied with this package to loosely attach the front of the switch to the front of the rack (only tighten the screws part way).



4. Slide the rear attachment sliding brackets along the slide bars until they contact the rear of the switch, then use the screws supplied with this package to attach the bars to the rear of the switch (tighten the screws all the way).



5. Slide the switch open and closed a couple of times to be sure that it is properly aligned and operating smoothly. (See *Opening the Console*, page 19 for opening and closing procedures.)
6. After determining that the switch is properly lined up and operating correctly, finish up by fully tightening down the partially tightened front attachment screws inserted in step 3.

Dedicated Invocation Keys

Two dedicated keys are provided on the keyboard module to make it easy to invoke Hotkey Mode and the OSD (as shown in the diagram below):

Note: These keys are toggles. Press once to invoke the feature; press again to exit.

Troubleshooting

General

Problem	Solution
Keyboard and/or mouse do not work after computer boots up.	For computers with PS/2 connectors, if you are using 2L-520xP cables, make sure that all the connectors (keyboard, video, and mouse) are plugged into their ports on the computer before starting the computer. Plugging the cables in after the computer has booted will not resolve the problem.
When I emulate the Sun keyboard, I can't go into OK Mode ([Stop] [A]).	To go into OK Mode, use the following key sequence: 1. Press and release [Ctrl]. 2. Press and hold [T]. 3. Press and hold [A]. 4. Release [T] and [A] together.
There are ghost images on the external monitor.	The distance between the external console and the KL1508A / KL1516A is too great. The maximum VGA cable distance should not exceed 20m and, in some cases, may need to be shorter. Replace the VGA cable with one of an appropriately short length.
I can't set the computers' screen resolutions higher than 1280 x 1024, even though the KL1508A / KL1516A supports 1600 x 1200 for remote computers.	The maximum screen resolution of the KL1508A / KL1516A's integrated LCD monitor is 1280 x 1024. In order to protect it from being damaged by resolutions that are beyond its display capability, we recommend that the screen resolutions of the connected computers be set to 1280 x 1024 or lower. If you wish to set the screen resolutions of the connected computers to something higher than 1280 x 1024, see *Screen Resolutions Higher than 1280 x 1024*, page 81.
When I switch to one of the computers on my installation, the LCD monitor screen goes blank. All I see is a black screen.	The maximum screen resolution of the KL1508A / KL1516A's integrated LCD monitor is 1280 x 1024. The screen resolution of the problem computer is set to something that is too high for the KL1508A / KL1516A's LCD monitor to display. To resolve the problem, connect an external KVM console (with a monitor capable of displaying the problem computer's screen resolution) to the KL1508A / KL1516A's external console ports. Use the external console to access the problem computer and reduce its resolution to 1280 x 1024. **Note:** Although the LCD monitor only supports video resolutions of up to 1280 x 1024, the KL1508A / KL1516A, itself can support video resolutions up to 1600 x 1200 @ 60 Hz. If you wish to set the screen resolutions of the connected computers to something higher than 1280 x 1024, see *Screen Resolutions Higher than 1280 x 1024*, page 81 for details.

Sun Systems

Problem	Solution

Video display problems with HDB-15 interface systems (e.g. Sun Blade 1000 servers).	The display resolution should be set to 1024 x 768 @ 60Hz.
	Under Text Mode:
	1. Go to **OK mode** and issue the following commands:
	`setenv output-device screen:r1024x768x60`
	`reset-all`
	Under XWindow:
	1. Open a console and issue the following command:
	`m64config -res 1024x768x60`
	2. Log out.
	3. Log in.

Video display problems with 13W3 interface systems (e.g. Sun Ultra servers).*	The display resolution should be set to 1024 x 768 @ 60Hz.
	Under Text Mode:
	1. Go to **OK mode** and issue the following commands:
	`setenv output-device screen:r1024x768x60`
	`reset-all`
	Under XWindow:
	1. Open a console and issue the following command:
	`ffbconfig -res 1024x768x60`
	2. Log out.
	3. Log in.

***** These solutions work for most common Sun VGA cards. If these procedures fail to resolve the problem, consult the manual for the Sun VGA card.

Screen Resolutions Higher than 1280 x 1024

The maximum screen resolution of the KL1508A / KL1516A's integrated LCD monitor is 1280 x 1024. In order to protect it from being damaged by resolutions that are beyond its display capability, we recommend that the screen resolutions of the connected computers be set to 1280 x 1024 or lower.

If you wish to display screen resolutions higher than 1280 x 1024, you can follow the procedure described below to change the computers' screen resolutions and safeguard the KL1508A / KL1516A's LCD monitor:

Note: We strongly recommend that you close the KL1508A / KL1516A LCD console before continuing (see *Closing the Console*, page 23.) Using the LCD monitor to view computers that are set to resolutions that exceed its maximum capability can damage it and shorten its life span.

To access computers from the local console when the integrated console is closed, simply connect an external KVM console with a monitor that supports 1600 x 1200 @ 60 Hz to the KL1508A / KL1516A's external console ports.

---

1. From a remote computer, log into the KL1508A / KL1516A and access the computer whose screen resolution you wish to change.
2. Open the computer's *Control Panel* and double-click **Display.** The *Display Properties* dialog box appears.
3. Click the **Settings** tab, and then click **Advanced.**
4. In the dialog box that appears, click the **Monitor** tab.
5. Under *Monitor settings***,** click to clear the *Hide modes that this monitor cannot display* check box.
6. Click **Apply.**
7. Click the **Adapter** tab, and then click **List All Modes.** The *List All Modes* dialog box appears.
8. Under *List of valid modes***,** select the display mode that you want the computer to use.

Note: The maximum screen resolution and refresh rate that the KL1508A / KL1516A supports for remote computers is 1600 x 1200@60 Hz.

---

9. Click **OK,** and then click **Apply.** The display mode changes to the one you selected.

10. If the *Monitor Settings* dialog box appears requesting you to confirm the settings change, click **Yes.**
11. After the Monitor Settings dialog box closes, click **OK.**
12. In the Display Properties dialog box, click **OK.**

This completes the procedure. Repeat these steps for any other computer whose screen resolution you wish to change.

Limited Warranty

ALTUSEN warrants this product against defects in material or workmanship for a period of one (1) year from the date of purchase. If this product proves to be defective, contact ALTUSEN's support department for repair or replacement of your unit. ALTUSEN will not issue a refund. Return requests can not be processed without the original proof of purchase.

When returning the product, you must ship the product in its original packaging or packaging that gives an equal degree of protection. Include your proof of purchase in the packaging and the RMA number clearly marked on the outside of the package.

This warranty becomes invalid if the factory-supplied serial number has been removed or altered on the product.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to improper equipment, or attempted repair by anyone other than ALTUSEN. This warranty does not cover products sold AS IS or WITH FAULTS.

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ALTUSEN reserves the right to revise or update its product, software or documentation without obligation to notify any individual or entity of such revisions, or update.

For details about extended warranties, please contact one of our dedicated value added resellers.

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